

EVIDENTIARY HEARING  
BEFORE THE  
CALIFORNIA ENERGY RESOURCES CONSERVATION  
AND DEVELOPMENT COMMISSION

In the Matter of:	)	
	)	
Application for Certification	)	Docket No.
for the El Segundo	)	00-AFC-14
Modernization Project	)	
_____	)	

EMBASSY SUITES  
1440 EAST IMPERIAL HIGHWAY  
EL SEGUNDO, CALIFORNIA 90245

TUESDAY, FEBRUARY 18, 2003

9:05 a.m.

Reported by:  
James Ramos  
Contract No. 170-01-001

PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345

COMMITTEE MEMBERS PRESENT

Robert Pernell, Presiding Member

William J. Keese, Chairman, Associate Member

HEARING OFFICER AND ADVISORS

Garret Shean, Hearing Officer

Michael Smith, Advisor Chairman Keese

E.V. "AL" Garcia, Advisor to Commissioner Pernell

STAFF AND CONSULTANTS PRESENT

David Abelson, Senior Staff Counsel

James W. Reede, Jr., Project Manager

Richard Sapudar

Rick York

Peter Raimondi, Professor of Biology  
University of California Santa Cruz

Gregor M. Cailliet, Professor  
Michael S. Foster, Professor of Marine Science  
California State University  
Moss Landing Marine Laboratories

Noel Davis, Vice President  
Chambers Group

James Schoonmaker, Principal  
Pacific Group Electric Power, LLC

PUBLIC ADVISER

Roberta Mendonca

APPLICANT

John McKinsey, Attorney,  
Terry German  
Livingston and Mattesich

APPLICANT

Ron Cabe, Project Manager  
David Lloyd, Secretary  
El Segundo Power II LLC  
NRG Energy, Inc.

Tim E. Hemig, Manager, Environmental Services  
NRG Energy, Inc.

Tim Murphy  
Robert Collacott, Manager, Water Quality  
URS Corporation

Charles Mitchell, President, Senior Scientist  
MBC Applied Environmental Sciences

Mark Kodis, Engineering Manager  
Western Region

INTERVENORS

Steve Fleischli, Executive Director  
Santa Monica Bay Keeper  
Heal The Bay

Bob Perkins  
Michelle Murphy  
Timothy Murphy  
Murphy/Perkins

Mark Gold

ALSO PRESENT

Tom Luster  
California Coastal Commission

Guangyu Wang, Staff Scientist  
Santa Monica Bay Restoration Commission

William T. Vanwagoner  
Los Angeles Department of Water and Power

William Paznokas, Staff Environmental Scientist  
California Department of Fish and Game

Charles B. Turhollow, Assistant Division Manager  
Department of Public Works  
City of Los Angeles

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## P R O C E E D I N G S

9:05 a.m.

CHAIRMAN KEESE: This is an evidentiary hearing to establish the factual record upon which this power plant siting case will be decided by the full Commission through the taking of oral, written and documentary evidence from the official parties to the proceeding on the topics that we have listed for today's hearing.

I'm Bill Keese, Second Member of this Committee. Robert Pernel, lead Commissioner has been delayed by flights. And Al Garcia, his Advisor, will be joining him. Mike Smith, on my left, is my Advisor on this case. And the proceedings will be handled by Garret Shean to my right. Garret.

HEARING OFFICER SHEAN: All right, with that we'd like to first thank the applicant for providing this room space for us, as well as the phones and any of the refreshments that are at the back. Thank you very much.

At this point let me also indicate that before we do an introduction of parties that the Commission's Public Adviser, Roberta Mendonca, is in the back of the room. I think most of the

1 people who are here today appear to be either  
2 parties or people who are associated with those  
3 parties. And there doesn't appear to be what we  
4 would call, you know, non-intervening public here.

5 But I point out that Ms. Mendonca is  
6 here to assist any party in the participation in  
7 the proceedings.

8 What we'd like to do next is to have the  
9 parties introduce themselves for the record and  
10 we'll begin with the applicant.

11 MR. MCKINSEY: Thank you, Hearing  
12 Officer Shean. My name is John McKinsey; I'm the  
13 counsel for the applicant, NRG Energy,  
14 Incorporated, and Dynegy. The applicant, itself,  
15 is El Segundo Power II, LLC. And representing El  
16 Segundo Power II, LLC, to my right, is Ron Cabe.  
17 And from NRG Energy and El Segundo Power II, LLC  
18 is David Lloyd to his right.

19 To my left is Tim Hemig, also from NRG  
20 Energy; and Bob Collacott from URS. He's one of  
21 our consultants that will be testifying today. To  
22 his left is Tim Murphy from URS and Terry German  
23 from my office. And we also have some members in  
24 the audience that we'll introduce if we need to.

25 HEARING OFFICER SHEAN: All right. The



1 Commission Staff.

2 MR. ABELSON: Thank you, Officer Shean.

3 My name is David Abelson; I'm Senior Staff Counsel  
4 at the Energy Commission. We have brought with us  
5 today a number of individuals who are concerned  
6 with and will be addressing the issue of  
7 biological resources and alternatives.

8 I'll have a slightly longer introduction  
9 of them as we call them to the stand, in terms of  
10 their background, but just by name, from my left  
11 and from your right is Dr. Noel Davis, Dr. Mike  
12 Foster, Dr. Greg Cailliet, Dr. Pete Raimondi; our  
13 Project Manager who all of you know, James Reede.  
14 And we have a number of folks in the audience and  
15 I'll just reserve for now the identification.  
16 Many of them will be participating as witnesses.

17 HEARING OFFICER SHEAN: That'd be fine.  
18 Okay.

19 MR. FLEISCHLI: Steve Fleischli,  
20 Executive Director of the Santa Monica Baykeeper  
21 on behalf of Santa Monica Baykeeper and Heal The  
22 Bay.

23 HEARING OFFICER SHEAN: Welcome.

24 MR. PERKINS: On my right is Michelle  
25 Murphy; I'm Bob Perkins. We are intervenors.

1           Also appearing today, intervenors Lyle  
2       Cripe and Elsie Cripe seated to my left.

3           HEARING OFFICER SHEAN: All right. Any  
4       other -- since I can't see everybody, any other  
5       party who is in the audience?

6           All right, --

7           MR. PAZNOKAS: Bill Paznokas, California  
8       Department of Fish and Game.

9           HEARING OFFICER SHEAN: We need you, if  
10      you will, please, sir, to come to the microphone  
11      so we can get it on the record.

12          MR. PAZNOKAS: Bill Paznokas. I'm a  
13      Staff Scientist with the California Department of  
14      Fish and Game. I'm the Marine Bay Species  
15      Coordinator for the Department, as well as the  
16      Water Quality Biologist for southern California.

17          HEARING OFFICER SHEAN: Thank you. Any  
18      other agency represented this morning?

19          MR. VANWAGONER: Good morning, I'm  
20      William Vanwagoner with the City of Los Angeles  
21      Department of Water and Power, Water Resources  
22      Unit.

23          HEARING OFFICER SHEAN: Thank you.

24          MR. TURHOLLOW: I'm Chuck Turhollow with  
25      the Bureau of Sanitation, Department of Public

1 Works, the City of Los Angeles.

2 HEARING OFFICER SHEAN: Thank you very  
3 much.

4 MR. LUSTER: Good morning; I'm Tom  
5 Luster, representing the California Coastal  
6 Commission.

7 HEARING OFFICER SHEAN: Welcome, Mr.  
8 Luster.

9 MR. WANG: Good morning, my name's  
10 Guangyu Wang. I'm the Staff Scientist for the  
11 Santa Monica Bay Restoration Commission.

12 HEARING OFFICER SHEAN: All right, with  
13 that, in terms of how we intend to proceed, the  
14 notice of the evidentiary hearing which was dated  
15 January 17th contains appendix A, the order of  
16 testimony. It's our intention to follow that  
17 today and through the remainder of the hearing,  
18 which will mean that the applicant, the party with  
19 the burden of proof, will go first. And then  
20 followed by the staff and the staff-associated  
21 parties.

22 Let me just indicate we have two pending  
23 motions, and we'll go through those two. They're  
24 from the, I'll just say collectively, the Santa  
25 Monica Baykeeper and Heal The Bay. The first is

1 for an objection. Let's reverse the order. A  
2 request for continuance of the evidentiary  
3 hearings, and for a motion to strike a portion of  
4 written material that was presented by the  
5 applicant after the January 22nd date.

6 And do you want to speak to those,  
7 or --

8 MR. FLEISCHLI: Thank you. On the  
9 continuance issue I want to thank the public  
10 outreach officer for helping us out there. Dr.  
11 Mark Gold will be able to testify, I believe, late  
12 this afternoon via teleconference. So I  
13 appreciate the fact that that accommodation has  
14 been made.

15 Dr. Rich Ambrose will be available  
16 tomorrow. So, thank you. And he probably will be  
17 listening in this morning. So I will withdraw my  
18 motion on that.

19 HEARING OFFICER SHEAN: All right. Was  
20 that plural? Motions?

21 MR. FLEISCHLI: I'll withdraw that one.  
22 The other one I would like some discussion on in  
23 terms of, you know, I have some concern that  
24 documents were filed late after the deadline and  
25 served late on all parties, including the

1 intervenors. And I would like an explanation for  
2 why that is acceptable.

3 HEARING OFFICER SHEAN: Why don't we  
4 have them indicate what the -- the request that  
5 was made to the applicant and their response.

6 MR. McKINSEY: As we understand the  
7 motion it was for a reference list which we  
8 provided at the request of CEC Staff Counsel Dave  
9 Abelson, who had indicated that he wanted a single  
10 list of the references that are referred to in  
11 written testimony by Charles Mitchell, our  
12 Biologist.

13 We provided that list, I believe, on  
14 Monday or Tuesday of the following week. I'm not  
15 convinced that it's late, to begin with, in the  
16 sense that it could have fallen under the realm of  
17 rebuttal testimony. It wasn't past a deadline  
18 with the rebuttal testimony meaning that there's  
19 no unfair surprise involved. And it wasn't  
20 intended to be ongoing or a continuous filing or  
21 any such matter. It was simply trying to respond  
22 to request for information.

23 If you granted the motion it wouldn't be  
24 intuitive because you would be denying other  
25 parties information that they really want to use.

1 But then, again, there's nothing really in that  
2 list that's not already incorporated in the  
3 testimony.

4 MR. FLEISCHLI: If everything that's in  
5 that list was given in the direct testimony I  
6 don't have a problem with it.

7 I would like to also point out, in terms  
8 of the direct testimony, I know you've criticized  
9 my papers for being a little too strong, I think,  
10 in your opinion, on continuous late filings. I  
11 read the evidentiary hearing requirements as  
12 requiring that everyone be served by a set date,  
13 not that the items be docketed, as well.

14 And I would just like to get  
15 clarification on that, as well. So in the future,  
16 if there are any filings, that we all get them,  
17 via email or otherwise, on the date that they're  
18 required. I understand the applicant had some  
19 email problems, but the items got docketed. But  
20 we didn't get them for a couple days after that,  
21 as well.

22 HEARING OFFICER SHEAN: All right. I  
23 think that just to explain the rule there, the  
24 protocols for the use of electronic filing and  
25 service are essentially additive, or to supplement

1 or complement the filing of documents with the  
2 docket unit, and service by postal mail.

3 Ordinarily what would occur is that  
4 there should be a simultaneous, that is on the  
5 same day, docketing with the Energy Commission  
6 Docket Unit, and placing a document in the first  
7 class U.S. mail for delivery to a party.

8 Part of the reason for having the  
9 electronic filing and service protocols is to  
10 expedite, as a convenience to all parties, the  
11 receipt of any information.

12 We knew that there were limitations with  
13 respect to file size, both on the delivering side,  
14 as well as the receiving side. And that's just  
15 something that all the parties pretty much have to  
16 accommodate, given the nature of the beast.

17 So that is the fundamental rule with  
18 respect to the service. It is that the underlying  
19 rules are for physical delivery to the Energy  
20 Commission for docketing and placing the item in  
21 the U.S. Postal Service mail that day, the same  
22 day.

23 MR. REEDE: Excuse me, Hearing Officer  
24 Shean. When there have been large files I've  
25 attempted to put them on the project website so

1       that everybody can see them readily and make a  
2       decision whether or not they want to download a  
3       very large file.

4               HEARING OFFICER SHEAN:   Okay.   With  
5       that, let me just say my understanding is your  
6       motion with regard to the continuance is  
7       withdrawn.   And --

8               MR. FLEISCHLI:   I'll withdraw my motion  
9       on the other, too.

10              HEARING OFFICER SHEAN:   All right, fine.  
11       Even though it appears like we're almost joined in  
12       a heavy duty trial here, fundamentally the Energy  
13       Commission has a public duty, and particularly  
14       under CEQA, to have its environmental  
15       documentation be expository.   That is to explain  
16       things that have gone on in the proceeding.

17              And in particular, and in light of the  
18       Moss Landing decision, it's apparent to the  
19       Committee that there are two elements that were  
20       not addressed in the testimony either of the  
21       applicant or the other side with respect to the  
22       aquatic biology issue.

23              And these two are some further  
24       explanation about the Gunderboom and what it  
25       either can or can't do.   We understand that the



1 applicant essentially has modified from the  
2 November prehearing conference to the January  
3 prehearing conference, what they propose to do  
4 with respect to the Gunderboom. Nonetheless, that  
5 needs to be fleshed out in the record.

6 The second was the game warden issue and  
7 whether or not and why the funding of a game  
8 warden to prevent or reduce poaching in Santa  
9 Monica Bay was an idea that came and went. And  
10 the record needs to have some explanation as to  
11 why it came and went so that that can be used  
12 ultimately in our CEQA documentation.

13 So, I'd just note, before we finish,  
14 whether that means in this session or something  
15 subsequent, we would like to address that.

16 Okay, two other things. Since the  
17 panels are seated next to either their attorneys  
18 or other members of the same group, I need to  
19 basically say this. We cannot allow coaching or  
20 discussions while a party is testifying on a  
21 matter, by the attorney or any other person on  
22 that side. So let me just point that out. I  
23 think we can all observe that. If there's a  
24 problem then what we'll do is separate the witness  
25 from the rest of the panel and proceed with the

1 testimony.

2           The last thing is, as we have indicated  
3 on the notice of the evidentiary hearings, we  
4 basically have a time per side that we're going to  
5 try to deal with. And it looks like we should  
6 probably have no problem achieving that. But just  
7 so that you know, I will be recording start-and-  
8 stop times on a piece of paper up here that will  
9 be available for anybody to look at, so that you  
10 have an opportunity to know what remaining time is  
11 available.

12           And with respect to the public parties  
13 who are on the staff side, at some point we're  
14 going to ask you, or if you think it's beginning  
15 to happen without our having asked yet, we want to  
16 make sure that you have the opportunity to present  
17 anything that is different from your perspective  
18 with regard to the issue from the staff on the  
19 issue on aquatic biology.

20           We hope that you've reasonably well  
21 coordinated your presentation, but if, at some  
22 point, you feel like this is being dominated by  
23 the staff and you have something to say that you  
24 haven't yet said, give us a high sign and we'll  
25 make sure you're accommodated.

1           Okay. Are there any other matters that  
2 any party wishes to bring to the Committee before  
3 we begin the presentation by the applicant? Mr.  
4 Perkins.

5           MR. PERKINS: May be trivial, but you  
6 mentioned that you planned to stick by the  
7 schedule. I'd like to request a minor change in  
8 the schedule on tomorrow afternoon's examination.

9           I'd prefer to examine the staff's  
10 witnesses first, and the applicant's second, if at  
11 all. The reason being that I've employed expert  
12 witnesses before, and the applicant's witnesses  
13 have a job to do, and that job doesn't make for  
14 easy cross-examination. But the staff's  
15 witnesses, at least theoretically, are going to  
16 search for the truth, and should be willing to go  
17 wherever that truth takes them. So I'd like to  
18 ask them questions first.

19           HEARING OFFICER SHEAN: All right, well,  
20 absent some of the editorial elements of that, I  
21 think we can accommodate your request to have the  
22 cross-examination of the staff witnesses first.  
23 Is that on air quality and visual, or --

24           MR. REEDE: Public health.

25           HEARING OFFICER SHEAN: All right.

1 Anything further from any other party?

2 MR. McKINSEY: Hearing Officer Shean, we  
3 haven't discussed the process by which we would go  
4 from direct to cross-examination. And we would  
5 suggest that what might be the ideal way is to  
6 allow us to present our direct testimony and then  
7 make the witnesses available for cross-  
8 examination. That might also facilitate the  
9 timing, as well. But I have not put this idea to  
10 any other party and so I don't what their  
11 positions on that are.

12 MR. ABELSON: From the standpoint of  
13 staff our expectation is that the applicant has  
14 the burden of going forward. This morning I  
15 discussed briefly with Mr. McKinsey his timeframe  
16 for that. He gave me an estimate which sounds to  
17 me to be very do-able.

18 And it would be our expectation to  
19 follow directly on with staff's position, as well.  
20 And frankly, we're going to probably reserve our  
21 cross until later on. So we'll be able to just  
22 move ahead with getting the two cases in front of  
23 the Committee and move on from there.

24 HEARING OFFICER SHEAN: Sounds fine to  
25 me. I think we want to leave wide discretion to

1 the parties as to how they wish to present their  
2 cases and assure that any other party have a  
3 reasonable and meaningful opportunity to do their  
4 cross-examination.

5 So, with that, you may proceed, Mr.  
6 McKinsey, pretty much as you wish.

7 MR. MCKINSEY: Thank you, Hearing  
8 Officer Shean. We're going to be presenting our  
9 testimony on alternatives and biology this  
10 morning. We're going to address the alternative  
11 cooling option in our oral testimony, and then  
12 we're going to shift to the discussion around  
13 biological effects associated either with the  
14 project or with the existing operating cooling  
15 system -- generating station at this time.

16 Our witnesses are essentially going to  
17 focus on two issues with alternatives, and that is  
18 the temperature limitation associated with any  
19 discharge of non-disinfected secondary effluent  
20 out the outfall and Hyperion; and secondly, the  
21 volume of flow available and whether or not there  
22 is a sufficient volume of flow available.

23 Under biology we're going to be  
24 basically addressing in sequence the system,  
25 itself, how it works and how it's been permitted

1 to date, and its current status.

2 Then we're going to discuss the effects  
3 associated with that cooling system. And then  
4 we're going to draw a connection between that  
5 system and this project.

6 And then finally we're going to address  
7 our proposed conditions of certification, and  
8 primarily, I think, the one that is of particular  
9 interest to the parties is our proposed facility-  
10 wide cap on flows, which was the thing that we  
11 added in November and finalized in its form in our  
12 prehearing conference statement in the beginning  
13 of January.

14 So, with that, I'd like to begin with  
15 our first witness. Will you give me a second to  
16 set up?

17 HEARING OFFICER SHEAN: Sure. Let's do  
18 this. If you have a number of witnesses who are  
19 going to testify, let's have them be sworn in as a  
20 panel.

21 MR. MCKINSEY: All right.

22 HEARING OFFICER SHEAN: So if there are  
23 any in the audience you're going to pull up, let's  
24 do them, as well.

25 (Pause.)

1 Whereupon,

2 TIM HEMIG, ROBERT COLLACOTT, MARK KODIS,

3 RON CABE and CHARLES MITCHELL

4 were called as witnesses herein, and after first

5 having been duly sworn, were examined and

6 testified as follows:

7 HEARING OFFICER SHEAN: Thank you.

8 MR. McKINSEY: The first witness we're  
9 going to call is Tim Hemig.

10 DIRECT EXAMINATION

11 BY MR. McKINSEY:

12 Q Tim, can you state your name and spell  
13 your name for the record?

14 MR. HEMIG: My name is Tim Hemig,  
15 spelled H-e-m-i-g.

16 MR. McKINSEY: Can you describe your  
17 education and qualifications that you're  
18 testifying will be part of today?

19 MR. HEMIG: Yes, I have a bachelors  
20 degree from the University of California Santa  
21 Barbara in physical geography. I have ten years  
22 of environmental management experience.

23 I'm currently employed as the Regional  
24 Environmental Manager for NRG Energy. And my  
25 region includes 2600 megawatts of power plants and

1 units, three of which are ocean-cooled power  
2 plants with NPDES permits. And I have five years  
3 specific experience at the El Segundo Generating  
4 Station, including the last NPDES renewal on June  
5 29th of the year 2000. And also been the  
6 Environmental Project Manager for the El Segundo  
7 Power Redevelopment project.

8 MR. MCKINSEY: Are you familiar with the  
9 written rebuttal testimony filed by El Segundo  
10 Power II, LLC?

11 MR. HEMIG: Yes, I am.

12 MR. MCKINSEY: What portions of that  
13 testimony were your responsibility?

14 MR. HEMIG: The flow tap portion and  
15 also the conditions of certification Bio-1, 2 and  
16 3.

17 MR. MCKINSEY: Do you want to make any  
18 corrections to that testimony?

19 MR. HEMIG: No, I do not.

20 MR. MCKINSEY: Are those portions  
21 accurate and you do adopt them as your testimony?

22 MR. HEMIG: Yes, I do.

23 MR. MCKINSEY: Thank you. Can you  
24 describe the El Segundo Power Redevelopment  
25 project?



1 MR. HEMIG: Yes, --

2 HEARING OFFICER SHEAN: Before we go  
3 further what I'd like to do is I assume you want  
4 to introduce it, but let me ask now if there is  
5 any party who objects to the qualifications of Mr.  
6 Hemig to testify as an expert.

7 All right, he --

8 MR. FLEISCHLI: I potentially will on  
9 some of the issues that he'll be talking about.  
10 If he talks about legal issues, for example, I  
11 think the law speaks for itself, and I don't think  
12 he has any qualifications to speculate about the  
13 thermal plan and whether or not the Regional Water  
14 Board would grant a permit in compliance with the  
15 thermal plan or not.

16 HEARING OFFICER SHEAN: Okay. That, I  
17 think, goes to the weight that we give his  
18 testimony, as opposed to, first of all, he's not  
19 going to testify as a lawyer, and I think we can  
20 catch that. Even the lawyers aren't going to  
21 testify as lawyers.

22 (Laughter.)

23 HEARING OFFICER SHEAN: We'll catch  
24 that, too. So, with that, Mr. Hemig is qualified.  
25 And are you going to have him summarize and then

1 introduce it?

2 MR. MCKINSEY: He's going to basically  
3 introduce the project in a summary fashion --

4 HEARING OFFICER SHEAN: Right.

5 MR. MCKINSEY: -- so we'll all have a  
6 picture.

7 Tim, can you describe the El Segundo  
8 Power Redevelopment project?

9 MR. HEMIG: Yes. The El Segundo  
10 Generating Station currently has four boiler units  
11 and steam turbines. And the picture up here, I  
12 hope you can see it, is the aerial photo of the  
13 existing facility.

14 This ground-level view shows units 1 and  
15 2 on the left side, and units 3 and 4, as they  
16 exist, on the right side. Units 1 and 2 were  
17 commissioned in 1955 and 1956. Units 3 and 4  
18 commissioned in '64 and '65.

19 The El Segundo Power Redevelopment  
20 project is essentially a replacement of existing  
21 units 1 and 2 with new combined cycle technology.  
22 Units 5, 6 and 7 would be the replacing units, two  
23 gas turbines and one new steam turbine.

24 The repowered facility will use the  
25 existing intake structure for ocean cooling.

1 We'll not modify the existing intake or outfall  
2 structure on the unit 1 and 2 side.

3 And essentially what we're doing is  
4 we're using the existing resources of the facility  
5 to add about 280 megawatts to the site with more  
6 efficient and cleaner power generation technology,  
7 utilizing the same volume and same intake  
8 structure for the ocean cooling. So it's a more  
9 efficient use of resources, and a lower cost, and  
10 cleaner way of generating electricity.

11 MR. MCKINSEY: Can you describe the  
12 cooling systems at El Segundo Generating Station?

13 MR. HEMIG: Yes, next slide, please.  
14 You know, kind of a large aerial view shows that  
15 there's a separate intake structure and outfall  
16 structure for units 1 and 2, and a separate intake  
17 and outfall for units 3 and 4.

18 And if you can see the slide, it shows  
19 the proximity of some other facilities we'll be  
20 discussing, like the Scattergood Generating  
21 Station immediately to the north; Hyperion  
22 Treatment Plant also to the north.

23 And basically the repower project will  
24 continue to use the intake and outfall structure  
25 in its existing state; just replace the generating

1 units. And have -- operate a new system under the  
2 existing NPDES permit. The existing permit, which  
3 was renewed in June 2000 allows for 207 million  
4 gallons per day of ocean-cooling circulation. And  
5 the new facility will continue to have that cap  
6 and continue to use no more than that amount of  
7 cooling water.

8 The NPDES permit that we have currently  
9 essentially originally issued 25 years ago, and  
10 that permit, as it's renewed, complies with the  
11 Clean Water Act and the California Environmental  
12 Quality Act. So the existing permit satisfies  
13 those requirements. And the El Segundo Power  
14 Redevelopment Project will not modify those  
15 structures and will not modify the permit.

16 HEARING OFFICER SHEAN: Mr. Hemig, do we  
17 have the slide that you're currently showing in  
18 any of the material that was filed?

19 MR. HEMIG: Yes. I think this actually  
20 came from the AFC, I believe.

21 MR. MCKINSEY: I believe this is in the  
22 original application for certification.

23 CHAIRMAN KEESE: Just for those of us  
24 who are ignorant, I can't read the map from here.  
25 Do you have a pointer or something --

1 MR. HEMIG: How about the next slide,  
2 it shows a little bit closer view of the --

3 CHAIRMAN KEESE: All right.

4 MR. HEMIG: -- structures.

5 CHAIRMAN KEESE: And then if after  
6 you -- all right, tell us what we have here then.

7 MR. HEMIG: Okay, yeah, the top two  
8 structures, the longer one is the intake structure  
9 for units 1 and 2, and the shorter of the top is  
10 the outfall, and the bottom is the intake/outfall  
11 for units 3 and 4. They're very close together.  
12 There's basically about a 500-foot difference, and  
13 then the maximum distance of separation.

14 CHAIRMAN KEESE: Thank you. Staff has  
15 shared with us a map here that we can get focused  
16 on, thank you.

17 MR. MCKINSEY: What issue is El Segundo  
18 Power II addressing with regards to biological  
19 resources?

20 MR. HEMIG: Basically two issues we're  
21 going to deal with today. We have an overhead  
22 over here. The first issue is whether or not  
23 there are significant impacts associated with the  
24 ocean cooling system. And what is occurring is  
25 the existing permitted cooling system will remain

1 unchanged, as I mentioned. There won't be any  
2 modifications to the structure.

3 The existing system does not have  
4 significant impacts as have been demonstrated with  
5 scientific studies. We will not have an increased  
6 flow and therefore will not have an increased  
7 adverse effect to aquatic biology

8 And further we have our proposed cap in  
9 Bio-3 which will be an enhancement and actually  
10 reduce flows at the facility compared to the  
11 maximum permitted discharge limit.

12 The second issue is whether or not the  
13 alternative cooling options is feasible. We  
14 believe that the temperature limit that would  
15 apply to the facility would make this option  
16 infeasible. The volumes necessary from the  
17 Hyperion Treatment Plant are not possible because  
18 of the flows from that facility.

19 And there's also additional health and  
20 safety issues that we have concerns with that  
21 render this option infeasible and we'll have  
22 additional testimony on that today.

23 HEARING OFFICER SHEAN: I might just,  
24 for the clarity of the record, indicate that the  
25 proposed alternative cooling option is that

1 proposed by staff which is the use of wastewater  
2 from the Hyperion wastewater treatment facility.

3 MR. HEMIG: That's the option.

4 MR. McKINSEY: Thank you, Tim. Our next  
5 witness is Robert Collacott. He has been sworn  
6 in.

7 DIRECT EXAMINATION

8 BY MR. McKINSEY:

9 Q Robert Collacott, can you state your  
10 name and spell your last name for the record?

11 MR. COLLACOTT: My name is Robert  
12 Collacott; and the spelling of my last name is  
13 C-o-l-l-a-c-o-t-t.

14 MR. McKINSEY: Can you describe your  
15 education and experience qualifications for your  
16 testimony today?

17 MR. COLLACOTT: Yes. I have a master of  
18 science in biology and a masters in business  
19 administration. And 26 years of experience in  
20 water quality management and permitting in  
21 southern California, including a number of  
22 projects in the Los Angeles region.

23 This has included a wide range of  
24 projects including several projects related to  
25 permitting of power plant discharges, including

1 the renewal of the NPDES permit for the El Segundo  
2 Generating Station.

3 MR. McKINSEY: Are you familiar with the  
4 written and rebuttal testimony filed by El Segundo  
5 Power II?

6 MR. COLLACOTT: Yes, I am.

7 MR. McKINSEY: What portions of that  
8 testimony were your responsibility?

9 MR. COLLACOTT: My responsibility was  
10 for the soil and water elements related to water  
11 quality and wastewater discharge permitting.

12 MR. McKINSEY: Do you want to make any  
13 corrections to that testimony?

14 MR. COLLACOTT: No, I do not.

15 MR. McKINSEY: Are those portions  
16 accurate and do you adopt them as your own  
17 testimony?

18 MR. COLLACOTT: Yes, they are accurate  
19 and I do adopt them as my testimony.

20 MR. McKINSEY: Are you familiar with the  
21 CEC Staff proposed alternative cooling options  
22 report?

23 MR. COLLACOTT: Yes, I am.

24 MR. McKINSEY: Did El Segundo Power II  
25 find this alternative to be feasible?



1 MR. COLLACOTT: No. The alternative  
2 cooling option proposes to use non-disinfected  
3 secondary effluent from the Hyperion Treatment  
4 Plant for once-through cooling.

5 HEARING OFFICER SHEAN: I apologize for  
6 interrupting, sir. Before we actually get into  
7 the substance of his testimony let me ask again,  
8 is there objection to the qualifications of Mr.  
9 Collacott as an expert to testify?

10 MR. FLEISCHLI: Same objection I had --

11 HEARING OFFICER SHEAN: All right, it  
12 will be the same ruling, then. Proceed, sir.  
13 We'll show you as qualified.

14 MR. COLLACOTT: May I proceed?

15 HEARING OFFICER SHEAN: Yes.

16 MR. COLLACOTT: Okay. As this proposed  
17 thermal discharge would consist of sanitary  
18 wastewater containing high levels of bacteria and  
19 other pathogens it would be required to continue  
20 to be discharged to the City of Los Angeles Bureau  
21 of Sanitation's five-mile outfall.

22 Although this discharge of non-  
23 disinfected secondary effluent will be located  
24 outside of the three-mile territorial limit, it is  
25 currently regulated under an NPDES permit issued

1 by the Los Angeles Regional Water Quality Control  
2 Board. And this permit requires compliance with  
3 the California ocean plan, which incorporates the  
4 requirements of the California thermal plan.

5 The West Basin Municipal Water District  
6 also discharges wastewater to the Santa Monica Bay  
7 through the Hyperion Treatment Plant five-mile  
8 outfall. And the NPDES permit issued by the L.A.  
9 Regional Board for this discharge also requires  
10 compliance with the California ocean plan.

11 The CEC Staff alternative assumes that  
12 the 100-degree Fahrenheit temperature limit in the  
13 NPDES permit issued to the L.A. Bureau of  
14 Sanitation for discharges of non-disinfected  
15 secondary effluent limit to the five-mile outfall  
16 would apply. And this is figure 1 showing the  
17 100-degree Fahrenheit limit.

18 In establishing the limit on temperature  
19 the L.A. Regional Board establishes that  
20 temperature is a factor to be regulated; however,  
21 the NPDES permit does not authorize the discharge  
22 of thermal waste, nor the other low-volume waste  
23 that would be generated by the project.

24 The CEC Staff alternative presents an  
25 unsolvable problem with respect to compliance with

1 the California thermal plan and the grossly  
2 insufficient volume of secondary effluent  
3 available for cooling from the Hyperion Treatment  
4 Plant.

5 MR. MCKINSEY: Would El Segundo Power  
6 Redevelopment be able to discharge the heated,  
7 non-disinfected secondary effluent out the five-  
8 mile outfall using Hyperion Treatment Plant's  
9 NPDES permit?

10 MR. COLLACOTT: No. The El Segundo  
11 Power would not be able to discharge thermal waste  
12 consisting of non-disinfected secondary effluent  
13 under the NPDES permit issued to the Hyperion  
14 Treatment Plant.

15 First of all, the NPDES permit that's  
16 issued to the L.A. Bureau of Sanitation authorizes  
17 the discharge of treated municipal wastewater, not  
18 thermal discharges.

19 Secondly, the El Segundo Power would be  
20 the discharge of the thermal waste, not the City  
21 of Los Angeles Bureau of Sanitation to whom the  
22 NPDES permit is issued. Therefore, a new  
23 individual NPDES permit that is unique and  
24 distinct from the Hyperion Treatment Plant NPDES  
25 permit would be required.

1           MR. McKINSEY: If El Segundo Power II,  
2           LLC obtained an NPDES permit what temperature  
3           limit would apply to that discharge of heated non-  
4           disinfected secondary effluent out the five-mile  
5           outfall at Hyperion.

6           MR. FLEISCHLI: Calls for a legal  
7           conclusion that he's not qualified to make.

8           MR. McKINSEY: We've put him up as  
9           somebody who is very experienced in the thermal  
10          plan as well as the ocean plan, who has conducted  
11          NPDES permitting. And we think that he's highly  
12          qualified to render an opinion as to what would be  
13          the temperature limit that would apply to a  
14          discharge. And that's a very relevant decision,  
15          and I don't think a legal answer would give you  
16          that answer.

17          HEARING OFFICER SHEAN: Yeah, I'm going  
18          to overrule the objection on the basis that based  
19          upon his experience he can testify what his belief  
20          would be.

21          MR. COLLACOTT: Okay. The thermal waste  
22          that would be discharged under the CEC Staff  
23          alternative would constitute a new thermal  
24          discharge under the California thermal plan.

25          A new discharge, as defined under the

1 California thermal plan, is any discharge which a)  
2 is not presently taking place, unless waste  
3 discharge requirements have been established;  
4 construction has commenced prior to adoption of  
5 the California thermal plan. Or which is  
6 presently taking place for which a material change  
7 is proposed but no construction, as defined, had  
8 taken place prior to the adoption of the plan  
9 which was adopted in 1975.

10 So, it's my opinion that this would be a  
11 new discharge under the California thermal plan.

12 There's no reason to believe that the  
13 requirements of the thermal plan would not apply  
14 to addition of this new thermal discharge. And  
15 the requirement for the existing NPDES permit  
16 issued to the Hyperion Treatment Plant, and the  
17 West Basin Municipal Water District that requires  
18 compliance with the California ocean plan,  
19 establishes a precedent for application of the  
20 ocean plan requirements to this very outfall.

21 The California thermal plan would  
22 specify the temperature limit for the thermal  
23 discharge proposed in the proposed alternative.  
24 The thermal plan specifies that a new discharge to  
25 coastal waters must be limited to 20 degrees

1 Fahrenheit above the temperature of the receiving  
2 water. And this limit was established in the  
3 California thermal plan as protective of the  
4 designated beneficial uses of the receiving  
5 waters.

6 The five-mile outfall discharges to the  
7 ocean bottom at approximately 60 meters of depth.  
8 And monthly average temperature of the ocean  
9 bottom ranges from 52 degrees to 56 degrees  
10 Fahrenheit. Under these conditions the thermal  
11 plan allows for a temperature limit of 72 degrees  
12 to 76 degrees Fahrenheit, depending on receiving  
13 water temperature.

14 And it's important to note in  
15 considering these temperature limitations that the  
16 discharge must be in compliance with the  
17 temperature limit at all times, not just on a  
18 daily average.

19 MR. MCKINSEY: Are you familiar with the  
20 CEC Staff argument that a variance could be  
21 obtained from the thermal plant that would allow  
22 discharges up to 105 degrees at the five-mile  
23 outfall?

24 MR. COLLACOTT: Yes. The CEC Staff  
25 assumes that 154 million gallons per day supply of

1 secondary effluent from the Hyperion Treatment  
2 Plant at a temperature of 85 degrees Fahrenheit at  
3 a temperature limit of 100 degrees Fahrenheit.  
4 And, again, as I've identified or described the  
5 100 degree Fahrenheit temperature limit would not  
6 apply.

7 MR. McKINSEY: Can you describe the  
8 general operation of the Hyperion Treatment Plant?

9 MR. COLLACOTT: Yes. The Hyperion  
10 Treatment Plant receives municipal wastewater from  
11 virtually the entire City of Los Angeles, as well  
12 as a number of other cities in Los Angeles County.  
13 The total population served is four million, and  
14 the Hyperion Treatment Plant provides primary and  
15 secondary treatment of the wastewater.

16 MR. McKINSEY: How do the flow rates of  
17 non-disinfected secondary effluent vary at  
18 Hyperion Treatment Plant?

19 MR. COLLACOTT: As identified in figure  
20 2 of the staff alternative, wastewater flows at  
21 the Hyperion Treatment Plant varies diurnally and  
22 it fluctuates from about 130 million gallons a day  
23 to approximately 470 million gallons per day.

24 It's important to note that there's no  
25 storage in the treatment plant, so the outflow

1 from the Hyperion Treatment Plant to the five-mile  
2 outfall closely mirrors the inflow rate.

3 MR. MCKINSEY: How does the temperature  
4 of the non-disinfected secondary effluent vary at  
5 Hyperion Treatment Plant?

6 MR. COLLACOTT: Well, as indicated in  
7 this next slide, the temperature of the non-  
8 disinfected secondary effluent generally reflects  
9 the ambient air temperature. In other words, the  
10 temperature of the non-disinfected secondary  
11 effluent is higher in the summer and lower in the  
12 winter. And the average daily temperature of the  
13 secondary effluent, as you can see, varies from  
14 about 73 degrees Fahrenheit to 84 degrees  
15 Fahrenheit.

16 MR. MCKINSEY: What cooling capacity  
17 then does the non-disinfected secondary effluent  
18 offer for use as once-through cooling medium?

19 MR. COLLACOTT: Well, during nine months  
20 of the year the temperature of the non-disinfected  
21 secondary effluent exceeds the temperature limits  
22 of the California thermal plan for discharges to  
23 coastal waters, even without the addition of  
24 thermal wastes.

25 In other words, the non-disinfected



1 secondary effluent would provide no cooling  
2 capacity for nine months out of the year. And  
3 during the few weeks of the year that the non-  
4 disinfected secondary effluent would not exceed  
5 the temperature limits only minimal cooling  
6 capacity would be available, which you can see the  
7 area on the left of the figure that's shaded in  
8 green shows that there would be some short period  
9 of time during which a very limited amount of  
10 cooling capacity would be available.

11 MR. MCKINSEY: Can you explain why the  
12 CEC Staff reaches such a different result in their  
13 cooling options report?

14 MR. COLLACOTT: Yes. First, the CEC  
15 Staff incorrectly assumed that the temperature  
16 limit of 100 degrees Fahrenheit in the Hyperion  
17 Treatment Plant NPDES permit would apply.

18 As I described, neither the Hyperion  
19 Treatment Plant NPDES permit nor the 100 degrees  
20 Fahrenheit temperature limit would apply to the  
21 proposed discharge of non-disinfected secondary  
22 effluent.

23 Second, the temperature limit for new  
24 thermal discharges to coastal waters established  
25 in the California thermal plan would apply to the

1 discharges of non-disinfected secondary effluent  
2 as proposed in the staff alternative.

3 The temperature limits would vary  
4 between 72 degrees and 76 degrees Fahrenheit  
5 depending on receiving-water temperature.

6 Also the CEC Staff analysis does not  
7 reflect the 100 million gallon per day minimum  
8 available flow of non-disinfected secondary  
9 effluent available from the Hyperion Treatment  
10 Plant for cooling.

11 And finally, the temperature limits for  
12 the thermal discharges established in the  
13 California thermal plan were determined to be  
14 protective of the designated beneficial uses of  
15 coastal waters.

16 Given the need for a 60 degree variance  
17 to the temperature limits established by the state  
18 policy to allow for this discharge, the regulatory  
19 approach of the L.A. Regional Board to the nature  
20 of the proposed discharge of non-disinfected  
21 secondary effluent, there's no reason to believe,  
22 in my opinion, that the staff alternative is  
23 feasible.

24 MR. McKINSEY: Thank you. Did you want  
25 to break or keep right on going?

1                   PRESIDING MEMBER PERNELL: No, go ahead.

2                   MR. McKINSEY: We're now going to call  
3                   our next witness, Mark Kodis. He's been sworn in.

4                   DIRECT EXAMINATION

5                   BY MR. McKINSEY:

6                   Q     Mark, can you state your name and spell  
7                   your last name for the record?

8                   MR. KODIS: My name is Mark Kodis; last  
9                   name is K-o-d-i-s.

10                  MR. McKINSEY: Can you describe your  
11                  education and experience qualifications for your  
12                  testimony today?

13                  MR. KODIS: Yeah, I have more than 25  
14                  years experience in the design and operation of  
15                  power systems, including systems of various  
16                  designs. I have acted in several power plant  
17                  engineering roles including my current role as  
18                  Engineering Manager for the Western Region.

19                  I've authored and co-authored various  
20                  articles for trade professional periodicals in the  
21                  power industry. I have a BS in engineering from  
22                  the U.S. Merchant Marine Academy, an MBA. In  
23                  addition I have completed all course work towards  
24                  a masters degree in engineering. I am a licensed  
25                  professional engineer in the State of California.

1           MR. McKINSEY: Are you familiar with the  
2 written and rebuttal testimony filed by El Segundo  
3 Power II, LLC?

4           MR. KODIS: Yes, I am.

5           MR. McKINSEY: What portions of that  
6 testimony were your responsibility?

7           MR. KODIS: Portions of the alternative  
8 cooling section.

9           MR. McKINSEY: Do you want to make any  
10 corrections to that testimony?

11          MR. KODIS: No.

12          MR. McKINSEY: Are those portions  
13 accurate, and do you adopt them as your testimony?

14          MR. KODIS: Yes.

15          MR. McKINSEY: We offer him as a  
16 witness.

17          HEARING OFFICER SHEAN: All right, any  
18 objection? Same?

19          MR. FLEISCHLI: Same objection.

20          HEARING OFFICER SHEAN: Same ruling.  
21 We'll show you as qualified, Mr. Kodis.

22          MR. McKINSEY: Can you explain what  
23 cooling capacity is as it relates to a power  
24 plant?

25          MR. KODIS: Yeah, basically steam passes

1 through a steam turbine; then enters into a  
2 condenser. The condenser basically uses cooling  
3 water to condense out the steam to return it to a  
4 liquid state, or a water state, so that it can be  
5 re-used to regenerate steam.

6 Cooling water condenses steam to water  
7 by removing heat from the steam. And in doing  
8 this the cooling water then has an increase in  
9 temperature between the inlet and the outlet.

10 Next slide. This slide gives a simple  
11 explanation of the heat, the heat removal with  
12 respect and its relationship to flow rate and  
13 temperature change in the cooling water.

14 In this equation  $Q$  is the actual heat  
15 removed in the condenser. The  $M$  is the actual  
16 flow rate through the condenser. The  $\Delta T$  is  
17 the actual temperature rise in the cooling water  
18 as it goes between the inlet and outlet condition.  
19 And  $C$  is the specific heat, and it relates to the  
20 ability of water to remove heat. And for this  
21 particular application that value is 1.

22 Since -- we use the term cooling  
23 capacity here to refer to the temperature  
24 difference. Since  $Q$  stays constant for a given  
25 plant output the temperature rise then tells us

1       how much flow is required to remove the heat in  
2       the condenser.

3               As temperature rises, or as the  
4       temperature rise is, in this particular case, is  
5       reduced, as you can see on the slide, then we must  
6       increase the mass flow, or the flow rate through  
7       the condenser to remove the same amount of heat.  
8       In other words, to condense all the steam from the  
9       steam turbine.

10              Likewise, as you increase the change in  
11       temperature between the inlet and outlet of the  
12       cooling water, then you'd reduce the mass flow to  
13       get the same amount of heat removed.

14              So understanding what the temperature  
15       rise limitation is is critical to understanding  
16       what our flow rates are.

17              MR. MCKINSEY: Is it feasible to use  
18       non-disinfected secondary effluent from Hyperion  
19       for once-through cooling at El Segundo Generating  
20       Station?

21              MR. KODIS: No.

22              MR. MCKINSEY: How did you reach this  
23       conclusion?

24              MR. KODIS: I did a flow requirement  
25       study and compared that to the flows that were

1 provided in the CEC proposal.

2 MR. MCKINSEY: Can you describe that  
3 study?

4 MR. KODIS: The study's described in my  
5 testimony. Basically I used a computer program to  
6 calculate the flow requirements for several  
7 scenarios based on the given conditions, basically  
8 temperature limitations, that we had.

9 I made the assumptions based on typical  
10 cooling water system design.

11 MR. MCKINSEY: Based on your study what  
12 are the conclusions regarding the flows necessary  
13 to operate the plant with non-disinfected  
14 secondary effluent?

15 MR. KODIS: Next slide, please. As  
16 shown in this table from my original testimony no  
17 operation is even possible nine months out of the  
18 year regardless of the amount of flow available  
19 simply because the temperature on the inlet is  
20 higher than the temperature required on the  
21 outlet.

22 Of the remaining months cooling water  
23 flows would need to be in excess of 2000 millions  
24 of gallons per day. This massively dwarfs the  
25 capacity of the Hyperion Treatment Plant, let

1       alone the lowest flow points of the day when we  
2       would have around 100 mgd available.

3               Suffice it to say the plant would never  
4       be built, let alone operate.

5               MR. MCKINSEY: Are there other  
6       engineering problems you identified in the CEC  
7       Staff's proposal?

8               MR. KODIS: Yes. There are several.  
9       I'll just touch on a few here. One is  
10      microbiofouling. This is the attachment of live  
11      microorganisms to the heat transfer surface in the  
12      condenser. The effects of this are serious  
13      performance degradations.

14              Another one is suspended solids. And we  
15      didn't have the availability of a water analysis,  
16      but in most wastewater there are large amount of  
17      suspended solids that could plate on the heat  
18      exchanger, the condenser in this particular case,  
19      and have the same effects. Would have a serious  
20      impact on performance.

21              And the third main impact would be  
22      ammonia level in the condenser. Typical levels of  
23      ammonia in wastewater are higher than 10 parts per  
24      million, and in essence we look for levels of  
25      almost undetectable limit for typical condenser



1 design.

2 MR. McKINSEY: Do you have an idea or an  
3 opinion on what size the pipeline would have to be  
4 that would have to run to and from Hyperion to El  
5 Segundo and back again?

6 MR. KODIS: Yes. The CEC proposal gave  
7 values of six to ten feet for both the line going  
8 to the El Segundo facility and returning. This  
9 was based on lower flow rates. Based on the flow  
10 rates of 2000 mgd plus, we're talking about  
11 essentially 10 to 12 pipes of ten-foot diameter,  
12 so to be able to get the area required to flow  
13 that amount of water.

14 MR. McKINSEY: What's your conclusion  
15 regarding staff's alternative cooling proposal?

16 MR. KODIS: Well, with the temperature  
17 limitations that we have here, the use of non-  
18 disinfected secondary effluent just wouldn't even  
19 be considered in the design of this particular  
20 case. Mainly because nine months of the year we  
21 don't even have the right temperature profile to  
22 be able to design to.

23 MR. McKINSEY: Thank you. Our next  
24 witness is Ron Cabe, and he's been sworn.

25 //

1 DIRECT EXAMINATION

2 BY MR. McKINSEY:

3 Q Ron, can you state your name and spell  
4 your last name for the record?

5 MR. CABE: My name is Ron Cabe, C-a-b-e.

6 MR. McKINSEY: Can you describe your  
7 education and experience backgrounds and qualify  
8 your testimony today?

9 MR. CABE: I have a bachelor of science  
10 in marketing from Arizona State University; and a  
11 bachelor of foreign trade from the American  
12 Graduate School of International Management.

13 For the last 15 years I have worked on  
14 development and permitting power plants throughout  
15 the U.S. and Latin America.

16 MR. McKINSEY: Are you familiar with the  
17 written rebuttal testimony filed by El Segundo  
18 Power II?

19 MR. CABE: Yes.

20 MR. McKINSEY: What portions of that  
21 testimony were your responsibility?

22 MR. CABE: The portion dealing with the  
23 feasibility of running these 10 to 12 10-foot  
24 diameter pipes to and from the Hyperion Treatment  
25 Plant and the generating station.

1 MR. McKINSEY: Do you want to make any  
2 corrections to that testimony?

3 MR. CABE: No, I do not.

4 MR. McKINSEY: Are those portions  
5 accurate and do you adopt them as your testimony?

6 MR. CABE: I do.

7 MR. McKINSEY: We offer the witness.

8 HEARING OFFICER SHEAN: Any objection to  
9 qualifying as an expert? We'll assume the same  
10 from -- and the same ruling.

11 All right, Mr. Cabe, you're qualified.  
12 Proceed, please.

13 MR. McKINSEY: Are you familiar with the  
14 proposed cooling option that would use non-  
15 disinfected secondary effluent from the Hyperion  
16 Treatment Plant for once-through cooling at El  
17 Segundo Generating Station?

18 MR. CABE: Yes, I am.

19 MR. McKINSEY: Have you considered the  
20 feasibility of constructing the required pipelines  
21 to pump the water to and from El Segundo  
22 Generating Station?

23 MR. CABE: Yes.

24 MR. McKINSEY: Can you provide that  
25 opinion?

1           MR. CABE: The estimated flow of 2000  
2       mgd would require 10 to 12 10-foot diameter pipes  
3       between the water treatment plant at Hyperion and  
4       the generating station at El Segundo.

5           Studying the amount of space that would  
6       be available to move this water and to install  
7       these pipes one of the first things that I decided  
8       would be necessary would be the movement or -- or  
9       the installation of those pipes one way or the  
10      other through some of the Chevron property.

11          I checked with Chevron and the answer  
12      there was absolutely not. They would not consider  
13      in any way the disturbance of their existing  
14      facility to accommodate those pipes. The physical  
15      space that would be available is simply not there.

16          MR. MCKINSEY: Did you consider the  
17      feasibility of installing the staff's version of  
18      the pipes, two six- to ten-foot pipes?

19          MR. CABE: Yes, we did. And the answer  
20      was the same. Particularly not only for the  
21      staff's proposal of two six- to ten-foot pipes, of  
22      course they'd have to be ten-foot because that's  
23      the diameter of the intake that's currently being  
24      used.

25          But considering also all the

1       considerations we had to go through in the earlier  
2       portions of this AFC proceeding, with air,  
3       cultural resources, geology, noise and the various  
4       other disciplines when we were considering the  
5       installation of 14-inch pipe for potable and 10-  
6       inch pipe for reclaimed water for use in the  
7       proposed facility, it just did not make any sense.

8               MR. McKINSEY: Thank you. Our next  
9       witness is Chuck Mitchell, and we're shifting over  
10      to biology.

11                       DIRECT EXAMINATION

12      BY MR. McKINSEY:

13              Q       Chuck, can you state your name and spell  
14      your last name for the record.

15              MR. MITCHELL: Yes, my name is Charles  
16      Mitchell, M-i-t-c-h-e-l-l.

17              MR. McKINSEY: Can you describe your  
18      education and experience qualifications for your  
19      testimony today?

20              MR. MITCHELL: Yes, I'm President and  
21      Senior Scientist of MBC Applied Environmental  
22      Sciences at Costa Mesa, California. I graduated  
23      from San Diego State University with a bachelor  
24      degree in zoology in 1965. And from '66 through  
25      '74 I continued my education with graduate studies

1 at San Diego State University and Long Beach State  
2 and the University of California at Irvine.

3 I've been studying the effects of  
4 coastal power plants on marine life for more than  
5 33 years. And I've authored or been the senior  
6 editor on more than 800 reports dealing with  
7 marine environmental issues.

8 Presently I am an elected member of the  
9 Board of Directors of the Southern California  
10 Academy of Sciences, and I serve on the California  
11 Department of Fish and Game's Science Advisory  
12 Committee for Upper Newport Bay, the Marine  
13 Institute. And I'm also Fish and Game-appointed  
14 member of the Southern California Regional Working  
15 Group, working on implementing the Marine Life  
16 Protection Act.

17 Prior to founding MBC I was part of the  
18 Marine Biological Research Staff at the California  
19 Institute of Technology, the Department of Fish  
20 and Game, working on the biology and behavior of  
21 coastal marine sport fish. And the National  
22 Marine Fisheries Service working on tuna behavior.  
23 And before that at the Scripps Institute of  
24 Oceanography.

25 MR. MCKINSEY: Are you familiar with the

1 written and rebuttal testimony filed by El Segundo  
2 Power II?

3 MR. MITCHELL: I am.

4 MR. McKINSEY: What portions of that  
5 testimony were your responsibility?

6 MR. MITCHELL: I addressed the marine  
7 biological portions.

8 MR. McKINSEY: Do you want to make any  
9 corrections to that testimony?

10 MR. MITCHELL: No.

11 MR. McKINSEY: Are those portions  
12 accurate and do you adopt them as your testimony?

13 MR. MITCHELL: I do.

14 MR. McKINSEY: Thank you. We offer the  
15 witness.

16 HEARING OFFICER SHEAN: Is there  
17 objection to qualifications?

18 MR. FLEISCHLI: I'd like to object to  
19 the qualifications of the witness. He only has a  
20 bachelors of science degree, as I understand. He  
21 alluded to some graduate studies. I'd like some  
22 clarifications as to whether or not he received a  
23 PhD or a masters degree in biology or any related  
24 field during those graduate studies.

25 He also made reference to numerous very

1 important institutions like Scripps and National  
2 Marine Fisheries Service, Fish and Game. My  
3 understanding of reading your r, sum, is most of  
4 that activity took place, in fact, before you  
5 received your bachelors degree in 1965.

6 I would also like to ask what your most  
7 recent peer-review publication is. He alluded to  
8 hundreds of publications, but to my knowledge, you  
9 know, I don't know which of those most recently,  
10 which ones have been peer-reviewed.

11 HEARING OFFICER SHEAN: All right, well,  
12 if you want to voir dire the witness, go ahead.

13 VOIR DIRE

14 BY MR. FLEISCHLI:

15 Q Please explain your graduate studies and  
16 whether or not you received any advanced degree, a  
17 masters or PhD related to biology studies.

18 MR. MITCHELL: No. I have not received  
19 a masters degree or PhD. I would have stated so  
20 if I had.

21 MR. FLEISCHLI: And what about your  
22 experience at institutions like the Scripps  
23 Institute of Oceanography and the National Marine  
24 Fisheries Service, California Department of Fish  
25 and Game? Do those take place before or shortly



1 after your undergraduate degree?

2 MR. MITCHELL: Those took place -- the  
3 Scripps while I was going to school, while I was  
4 in college and even high school.

5 The National Marine Fisheries Service,  
6 as I was an undergraduate and then a graduate. I  
7 was a fisheries research biologist there.

8 Department of Fish and Game after that,  
9 as a marine biologist. And after that at the  
10 California Institute of Technology in the  
11 Environmental Health and Engineering Section where  
12 I was, for the lack of a better title, issued a  
13 title of Research Engineer.

14 MR. FLEISCHLI: And what about all of  
15 your publications? Can you please say, state when  
16 the most recent peer-review publication was?

17 MR. MITCHELL: I would suspect that the  
18 last peer-reviewed publication would be a report  
19 on the sport fishing, what's called or referred to  
20 now as the L.A. Times sport fishing database,  
21 which was a Saltonstall-Kennedy grant from the  
22 National Marine Fisheries Service. And it's my  
23 understanding that that most recently, as of this  
24 week, is going to be set up as a website with the  
25 National Marine Fisheries Service.

1 MR. FLEISCHLI: And before that?

2 MR. MITCHELL: Before that peer-reviewed  
3 is probably in the early '80s.

4 MR. FLEISCHLI: I have no further  
5 questions. I'll maintain my objection.

6 HEARING OFFICER SHEAN: All right. On  
7 the basis of the witness' r, sum, and answers to  
8 these questions on voir dire we'll find you  
9 qualified to testify as an expert.

10 DIRECT EXAMINATION - resumed

11 BY MR. McKINSEY:

12 Q Chuck, what was the focus of your  
13 testimony?

14 MR. MITCHELL: Well, I've been involved  
15 in research studies of monitoring in Santa Monica  
16 Bay and offshore El Segundo since the early 1970s.  
17 And my testimony here today was to explain why the  
18 proposed project will not have a significant  
19 effect on the marine environment.

20 MR. McKINSEY: Can you describe the  
21 intake systems, their surroundings and the nearby  
22 facilities at El Segundo Generating Station?

23 MR. MITCHELL: Certainly. The El  
24 Segundo Generating Station, we've seen a small map  
25 here today, was essentially located in Santa

1 Monica Bay in an open coastal environment. The  
2 sea floor in the area is largely sand with little  
3 or not rocky substrate except for that placed as  
4 armor rock around offshore conduits, whether they  
5 be the generating station or the ocean outfalls  
6 from the Hyperion Treatment Plant.

7 It's a wide bay with no restrictions to  
8 water circulation; no fresh water inputs other  
9 than urban storm drains and flood control  
10 channels. And natural rocky reefs are only found  
11 at the extreme ends of the Bay. This is a heavily  
12 urbanized area and the Bay is a popular recreation  
13 area for boaters and bathers and surfers.

14 The El Segundo Generating Station, as  
15 we've already heard, has a once-through cooling  
16 water system. It takes in seawater; circulates it  
17 through the condenser/heat exchanger system; and  
18 thus converts the steam the plant's produced to  
19 drive the turbines back into fresh water that's  
20 then recirculated and re-used.

21 Units 1 and 2 began operation in the  
22 1955-56 period, and the cooling water intake for  
23 those two units is referred to as intake number  
24 one. Units 3 and 4 began operation in the '63/64  
25 period and intake number two provides the cooling

1 water for those two units.

2 The intake structures are located within  
3 about 350 or 400 feet of one another and they're  
4 essentially the same in design. These are large  
5 concrete structures, rather rectangular in shape,  
6 about the size of your garage. They're no small  
7 structure.

8 Unit 2 is slightly larger in dimensions  
9 than -- I'm sorry, the intake 2 is slightly larger  
10 than intake 1. The maximum cooling water flow is  
11 207 mgd for intake 1, and 400 mgd for intake 2.

12 Now, these intakes are located about  
13 2600 feet offshore at a water depth of about 30  
14 feet.

15 Again, these structures are large.  
16 Again, they're standing on the sea floor with  
17 rock, rubble around them to protect them from wave  
18 erosion, that sort of thing.

19 And on the upward facing opening of the  
20 intake structure there's a flat concrete slab that  
21 stands on legs about four feet high. This is  
22 called the velocity cap. Velocity caps, its  
23 purpose is to reduce the number of fish and other  
24 foreign objects that are sucked into the cooling  
25 water flow. And it was first installed in the

1 late '50s. At El Segundo I believe it was 1958.  
2 And its demonstrated effectiveness has made it a  
3 fixture on all intakes at coastal generating  
4 stations in southern California. You see the same  
5 design or slight modifications at all generating  
6 stations.

7 Water flows into this intake structure  
8 by gravity; and it passes through the intake,  
9 itself, the orifice at the intake at about 2.4  
10 feet per second. That's about a mile and a half  
11 an hour, or about half the speed that you walked  
12 down the hall to get here.

13 As water enters the structure it goes  
14 down through the velocity cap and then via conduit  
15 into the intake well or forebay. Some of you may  
16 have been at the generating station and seen the  
17 forebay.

18 This is a large structure, again. And  
19 as it comes, as the water exits the conduit it  
20 opens into a much wider area, and so the flow is  
21 very much lower.

22 At the back part of this forebay there  
23 are traveling screens and this is the device that  
24 removes the trash and some of the larger fishes on  
25 occasion.

1           From here the water goes into the  
2   condenser tubes, or into the condenser assemblies  
3   and I want you to imagine this. We have ten-foot  
4   diameter pipe now that's going into literally  
5   thousands of about three-quarter inch tubes,  
6   something like that, as part of the heat exchanger  
7   systems. Much like the radiator in your car.

8           As it enters the heat exchanger or  
9   condenser tubes it's warmed by about 22 degrees  
10   Fahrenheit. And then it's, of course, collected  
11   on the other side of the condenser tubes. And  
12   then discharged back out to sea.

13          Now, the discharge structure is a little  
14   different. It's located slightly inshore of the  
15   intake structure and usually at a depth of about  
16   26 feet. The structure is identical to the intake  
17   except that it has no velocity cap, okay. There's  
18   nothing to impede upward flow.

19          The upward facing now discharge conduit  
20   is directed at the sea surface. The water is  
21   jetted to the sea surface. And as it does so it  
22   entrains cooler water around it, ambient water, in  
23   about a ratio of like ten-to-one. And so it's  
24   mixed and cooled rather rapidly.

25          It now reaches the surface and it's

1       probably about 4 degrees Fahrenheit above ambient  
2       temperatures. Now this what we call a thermal  
3       plume spreads out in a thin layer, usually less  
4       than a meter thick, and dissipates. It dissipates  
5       heat to the atmosphere. It's washed away  
6       essentially.

7               There is another generating station that  
8       we've talked about, Scattergood Generating  
9       Station, that located in the immediate vicinity.  
10      And it's operated by the Los Angeles Department of  
11      Water and Power. It's about 3500 feet upcoast or  
12      to the north. And the Scattergood facility  
13      circulates just a little less than 500 mgd of  
14      cooling water a day.

15             You saw a map a little earlier and I  
16      want to explain something about that map. And  
17      that's that it had the NPDES monitoring stations  
18      that were on that document. Because of the  
19      proximity of the two facilities and the potential  
20      overlap of effects, the Regional Water Quality  
21      Control Board has historically combined the NPDES  
22      receiving water monitoring requirements for both  
23      of these generating stations together. And so the  
24      cost of the monitoring is shared by the operators.

25             MR. MCKINSEY: How can the operation of

1 a cooling system affect the marine environment?

2 MR. MITCHELL: If we examine the range  
3 of marine environmental effects that have been  
4 documented with the operation of open ocean  
5 coastal generating stations we see that they fall  
6 into basically three categories. And I'm sure  
7 this comes as no surprise.

8 There's thermal effects; there are  
9 impingement effects; and there are entrainment  
10 effects.

11 Now, thermal effects refer to the direct  
12 or indirect changes that are associated with  
13 contact with the discharge water, itself. These  
14 could be either physical changes or they can be  
15 biological changes.

16 The second and third categories I'm  
17 going to kind of combine, and that's the  
18 impingement and entrainment aspects. And these  
19 are related to the intake of seawater and the  
20 effects it can cause on organisms within that  
21 water.

22 Since seawater contains many microscopic  
23 plants and animals, as well as adults, and they're  
24 all entrained in the cooling water flow. Those  
25 that are large enough to be caught on the screens



1 in the forebay that we talked about a little  
2 earlier are impinged. The remainder continue  
3 through the cooling water circuit.

4 The potential for such effects has been  
5 the subject for both special studies and routine  
6 environmental monitoring for more than 25 years in  
7 southern California, and particularly Santa Monica  
8 Bay.

9 Generally the objective of these studies  
10 and efforts have been to see whether the operation  
11 of the generating station has caused any changes  
12 in the environment. And we're talking about  
13 changes and whether they were positive or  
14 negative, and whether they were significant. By  
15 significant I mean that they're measurable or  
16 marked changes in the numbers or kinds of  
17 organisms that are within the area affected by the  
18 intake and discharge, as opposed to those that are  
19 located outside of that area of influence.

20 MR. McKINSEY: Do we understand the  
21 thermal effects associated with cooling system  
22 number one at El Segundo Generating Station?

23 MR. MITCHELL: Yes, we do.

24 MR. McKINSEY: What are the thermal  
25 effects associated with the cooling system number

1 one?

2 MR. MITCHELL: In the early 1970s there  
3 were special thermal effect studies that were  
4 conducted in the State of California. These were  
5 part of the 316A designation under the Clean Water  
6 Act. And they were required of all coastal  
7 generating stations in California. All over the  
8 nation, actually.

9 These studies were locally 12 to 18  
10 months in duration. They were designed very  
11 carefully to examine any cause-and-effect  
12 relationship between the operation of the  
13 generating station and marine biological changes.

14 And most of them were conducted -- well,  
15 they were conducted from '71 through '72 at El  
16 Segundo. And they mapped the size and shape of  
17 the thermal plume under a range of operating  
18 conditions, usually trying to approach full  
19 operating loads. And the size, well, size and  
20 shape of the thermal plume, and examined the  
21 effects on resident fish populations, on animals  
22 and plants that lived on the sea floor, as well as  
23 those that lived along the shoreline.

24 The thermal effects study for the El  
25 Segundo Generating Station concluded that the

1 operation of the station complied with the thermal  
2 plan; that it revealed no degradation of the  
3 beneficial uses of the coastal waters of Santa  
4 Monica Bay; and that there were no biological  
5 effects attributable to temperature input.

6 MR. McKINSEY: Do we understand the  
7 entrainment effects of intake number one?

8 MR. MITCHELL: Yes, we do.

9 MR. McKINSEY: And what are the  
10 entrainment effects of intake number one?

11 MR. MITCHELL: Well, first of all,  
12 intake number one has less than significant effect  
13 on the marine environment. In 1977 EPA wrote  
14 specific national guidelines for the evaluation of  
15 fish losses associated with the operation of  
16 cooling water intakes, and required the  
17 demonstration that the seawater intake for these  
18 situations represented the best available  
19 technology. And these studies were called 316B  
20 studies.

21 Now local implementation of these  
22 guidelines fell to the Regional Water Quality  
23 Board here in California.

24 During 1977 and '78 there were literally  
25 thousands of manhours that were spent by

1 scientists, utility biologists, agency staff from  
2 the Regional Water Quality Control Board, from the  
3 California Department of Fish and Game and from  
4 the National Marine Fisheries Service to design an  
5 appropriate and effective approach to addressing  
6 these issues. And enormous amount of time.

7 The Southern California Edison Company,  
8 who at that time owned most of the coastal  
9 generating stations here in southern California,  
10 including El Segundo, began an intensive program  
11 to examine and characterize all of the coastal  
12 intakes at their generating stations. These were  
13 largely hydrodynamic and physical descriptions and  
14 how they operated.

15 And they also began to gather  
16 information on larval fish abundance that would  
17 allow them to design an effective sampling program  
18 to satisfy the 316B requirements.

19 Probably the first thing that was  
20 attempted or accomplished was the independent  
21 studies during '78 through '80; and then these  
22 studies were expanded to continue until 1984. And  
23 these were studies funded jointly by Southern  
24 California Edison Company and the University of  
25 California sea grant program.

1           And they sampled larval fish on a  
2   monthly basis at 20 locations along the coast from  
3   Point Conception, which is north of Santa Barbara,  
4   to the Mexican border, to characterize that group  
5   of larval fish that were in those coastal waters.

6           At the same time there was another  
7   effort ongoing and that was to look at these eight  
8   coastal generating stations that Edison had and  
9   group them into similar intake structures, similar  
10   intake behaviors and allocate them into similar  
11   larval fish communities. These stations were  
12   located up and down the coast.

13           And it showed basically -- the results  
14   of these initial studies showed that the larval  
15   fish community was similar from basically Port  
16   Hueneme, which is in the Ventura area, southward  
17   down through the central portion of Santa Monica  
18   Bay.

19           During 1979 and '80 there began  
20   intensive 316B studies at a number of facilities.  
21   And the one that we're going to address here was  
22   the Ormond Beach Generating Station, which is  
23   about 40 miles north of the El Segundo Generating  
24   Station, and generally up-current.

25           But it's important to note it's in a

1 very similar environment; it's on a shelf, sandy  
2 shelf. There are no natural rocky substrates  
3 nearby. And it has a very similar larval  
4 community. And it's very similar in its intake  
5 characteristics.

6 The results from the Ormond Beach  
7 studies were then applied to the flow volumes that  
8 we experienced at the El Segundo Generating  
9 Station. And the estimated losses in larvae and  
10 adults were calculated for the 316B demonstration  
11 for the El Segundo Generating Station.

12 The conclusion of the study indicated  
13 that the losses were not significant. They  
14 represented only a small fraction of the local  
15 stock.

16 So I just want to point out that we need  
17 not count every tree in a forest to estimate how  
18 many and what kinds. We can actually count trees  
19 in the small sectors and then multiply them by the  
20 result to characterize the entire forest.

21 So the existing 316B demonstration has  
22 fulfilled the requirements of the NPDES permit and  
23 it exists today. It's in effect at present.

24 During the same period there were 316B  
25 studies being conducted at the Scattergood

1       Generating Station, which, if you remember, was  
2       3500 feet away. And the cooling water system for  
3       Scattergood is similar in dimension and location,  
4       obviously.

5               And studies at Scattergood provide site-  
6       specific larvae information; and show similar  
7       kinds and abundances of larvae. The losses for  
8       Scattergood were calculated and they were  
9       determined to be less than 5 percent of the local  
10      stock criteria that was an acceptable level used  
11      by EPA at that time, and were not considered  
12      significant.

13             In summary, I think that El Segundo's  
14      316B studies, as well as Scattergood's, show that  
15      the operation of intake one does not have a  
16      significant entrainment effect.

17             MR. MCKINSEY: Do we understand the  
18      impingement effects of intake number one?

19             MR. MITCHELL: Yes, we do.

20             MR. MCKINSEY: What are the impingement  
21      effects of intake number one?

22             MR. MITCHELL: Larval fish are only one  
23      part of the equation. Adult fish enter the  
24      intake, as well, and become resident in the  
25      forebay. A few are lost each day -- I saw a

1 chuckle there -- they become resident, I know.

2 HEARING OFFICER SHEAN: That's like  
3 residing on death row.

4 MR. MITCHELL: You're exactly right.

5 (Laughter.)

6 MR. MITCHELL: You're exactly right.

7 HEARING OFFICER SHEAN: And you are  
8 residing, but --

9 MR. MITCHELL: You are residing. A few  
10 are lost each day to fatigue and are impinged on  
11 the trash screens. And, of course, all are lost  
12 during the periodic heat treatments. So they are  
13 a little bit like death row.

14 Heat treatments are conducted to remove  
15 plants and animals from the wall of the cooling  
16 water conduits that would restrict water flow,  
17 cooling water flow into the generating stations,  
18 and potentially clog the condenser, these three-  
19 quarter inch tubes.

20 So about once every six weeks on average  
21 over a period of a few hours the cooling water  
22 system is kind of redirected. And the cooling  
23 water within the forebay is recirculated until it  
24 is very warm, and then the conduits are reversed  
25 and that heated water now is discharged out what



1 would normally be the intake. This kills the  
2 mussels and barnacles that are fouling the walls  
3 of the conduit.

4 Of course, it causes the loss of any  
5 fish within the forebay, as well. And these  
6 losses are routinely monitored. They have been  
7 for probably 25 years. And reported in the annual  
8 NPDES reports.

9 Since 1990 we've recorded a total of 78  
10 species that have been taken at heat treatment.  
11 But less than ten species really usually account  
12 for 90 percent of the fish loss. These dominant  
13 species are generally bait fish, forage fish, not  
14 species generally sought after by anglers.

15 Let me have that first slide, we've got  
16 it right there. Okay. You can see here that the  
17 El Segundo Generating Station has averaged about,  
18 from 1990 to 2000, averaged about 1850 pounds of  
19 fish per day -- I'm sorry, per year. This amounts  
20 to about five pounds of fish per day. And the  
21 range was from a low annual range of 434 pounds  
22 per year to a high of 3770 pounds per year. In  
23 pounds per day this ranges from 1.2 pounds to this  
24 high of 10.3 pounds per day of fish.

25 Let's talk about total numbers. The

1 total numbers of fish, over this same ten-year  
2 period, was basically 102,000 fish, or something  
3 in the order of 10,200 fish per year, or about 28  
4 fish per day.

5 To put these numbers in perspective for  
6 you, sport fishing catch data from the Department  
7 of Fish and Game shows that between 1980 and 1994  
8 anglers in Santa Monica Bay removed a little more  
9 than 2 million fish.

10 If we assume that the 28 fish per day  
11 with a maximum weight of more than 10 pounds, a  
12 little more than 10 pounds, this amounts to  
13 probably less than the bait the fishermen use to  
14 catch that 2 million fish.

15 So we think that it's an insignificant,  
16 it's not a significant effect. Yes, there are  
17 some losses. It is not significant.

18 MR. McKINSEY: How would you  
19 collectively assess the thermal impingement and  
20 entrainment effects of intake number one?

21 MR. MITCHELL: Well, in short,  
22 entrainment and impingement losses of fishes is  
23 small. We see that. And after 30 years of  
24 biological monitoring there's been no evidence of  
25 significant effects on the fish community of Santa

1 Monica Bay.

2 In 1978 we started the NPDES permitting  
3 process for all of these discharges and intakes,  
4 and the process was initiated by the state and  
5 continues today. As part of that program there  
6 are specific discharge and biological monitoring  
7 tasks that have to be accomplished every year.  
8 And these are to continually check to see that the  
9 marine environment is not being degraded.

10 This includes measurement of water  
11 quality; physical/chemical parameters; bottom-  
12 dwelling organisms; fishes. And the results of  
13 this monitoring has consistently demonstrated that  
14 the operation of the El Segundo Generating Station  
15 has no significant effect on the marine life in  
16 Santa Monica Bay.

17 The operation of the station remains in  
18 compliance with all applicable water quality  
19 standards and is fully permitted.

20 MR. MCKINSEY: Given those effects of  
21 intake number one, how would you -- or what could  
22 be the effects of the El Segundo Power  
23 Redevelopment project?

24 MR. MITCHELL: Well, ESPR makes no  
25 changes to the fact that the El Segundo Generating

1 Station has operated in the same configuration for  
2 more than 40 years, no significant effects on the  
3 beneficial uses of the waters of Santa Monica Bay.

4 Larval fish populations have been  
5 measured; they're documented; their losses  
6 calculated. Adult fish populations, which are, of  
7 course, the source of those larval forms, in the  
8 same resource waters have been monitored on a  
9 regular basis for the last 20 years at least.

10 Over time, yes, there have been shifts  
11 associated generally with large-scale shifts in  
12 ocean temperatures. But the dominant members of  
13 the fish community have remained the same.

14 The El Segundo Generating Station  
15 currently meets, again, all water quality  
16 standards and will continue to do so. The  
17 Generating Station has operated for many decades  
18 with no significant effects on the marine  
19 environment, and with no changes to intake number  
20 one, caused by the proposed project, it's only  
21 reasonable to expect that in the future we could  
22 expect no significant effects from ELPR, as well.

23 MR. MCKINSEY: Are you familiar with the  
24 flow cap proposed by El Segundo Power II in  
25 proposed biology condition Bio-3?

1           MR. MITCHELL: I am. It's a voluntary  
2   enhancement and Bio-3 limits the flow for the  
3   entire facility of El Segundo. It treats a gallon  
4   water through intake one the same as it does as  
5   intake two, which I think biologically makes  
6   sense. They're both in the same source water.  
7   And the proposed cap will reduce the current flow  
8   by 38 percent. And this reduces the permitted and  
9   already insignificant effects by the same 38  
10   percent.

11           So I think it's an extraordinary and  
12   impressive offer, and certainly one that, in my  
13   experience, is unprecedented.

14           The entrainment losses are obviously  
15   directly related to the volume of water  
16   circulated, and if we can reduce the volume we  
17   reduce the number of larvae entrained. And if we  
18   can also reduce the flow during those times of the  
19   year when we have maximum larval concentrations,  
20   then we further reduce the potential loss.

21           If we can go to the next slide, this is  
22   information on fish eggs and larvae databases  
23   maintained by the California Department of Fish  
24   and Game and the National Marine Fisheries Service  
25   through CalCofi, this one's from CalCofi atlas for

1 number 34. And the data's here from 1951 to 1998.  
2 This is what the total number of fish eggs look  
3 like in the area offshore of southern California  
4 by month.

5 So we can see this February, March,  
6 April peak in fish eggs. And we see a similar  
7 peak in the total number of larvae. This is 50  
8 years of at least quarterly data collected by two  
9 elements of our state government that are  
10 responsible for the monitoring of California's  
11 fisheries. These are the same data that are used  
12 to predict not catch statistics, but maximum  
13 sustainable yields, stock assessments, that sort  
14 of thing. Same database.

15 So, I think that by imposing these  
16 proposed flow limitations during the months of  
17 February, March and April we substantially reduce  
18 the potential effects.

19 MR. McKINSEY: Thank you. We're going  
20 to recall as our last witness Tim Hemig.

21 CHAIRMAN KEESE: I have a question here.

22 MR. McKINSEY: Sure.

23 CHAIRMAN KEESE: You have two intakes  
24 and you have one ponding, is that -- one forebay?

25 MR. MITCHELL: No. There's two

1 forebays, both systems are independent.

2 CHAIRMAN KEESE: So the statistics, are  
3 the statistics you've been giving us as to fish  
4 impingement/entrainment from intake one or from  
5 the power plant?

6 MR. MITCHELL: They're from the power  
7 plant.

8 CHAIRMAN KEESE: Okay, so that's from  
9 two different forebays or --

10 MR. MITCHELL: That's correct. We  
11 generally combine the two and report them  
12 together.

13 CHAIRMAN KEESE: Thank you.

14 MR. GARCIA: When you were talking about  
15 the heat treatment, could you describe the normal  
16 discharge temperature of the circulating water,  
17 and then also describe the discharge temperature  
18 of the heat treatment process, and describe how  
19 long an operating process that is, like 15  
20 minutes, two hours?

21 MR. MITCHELL: Sure. Normal operating  
22 procedures we look at a 22 degree Fahrenheit delta  
23 T. So that under normal conditions the discharge  
24 water is about 22 degrees Fahrenheit above  
25 whatever the intake temperature is.

1           During heat treatments the water in the  
2           intake well is again recirculated and heated up.  
3           It depends on which generating station we're  
4           talking about, and in particular loads at the  
5           time, but it can be as high as 120 degrees in the  
6           intake well, or in that forebay.

7           It takes usually a couple of hours to  
8           get up to that temperature. And then that water  
9           is discharged for a period of maybe 40 minutes or  
10          something like that. It's a relatively short  
11          period of time because there's not a great volume  
12          of water there. And so that's what kills the  
13          barnacles and mussels.

14          MR. GARCIA: What's the frequency that  
15          the heat treatment operation is conducted?

16          MR. MITCHELL: In general, for all the  
17          coastal generating stations, they shoot for like  
18          once a month or once every six weeks. But it's  
19          different for different periods of the year.

20          They generally don't conduct a heat  
21          treatment unless they have to, because it's a big  
22          drill. It involves a lot of people, and they're  
23          changing configuration of the generating station.  
24          So it's done as infrequently as possible.

25          But during springtime when there's more



1       fouling organisms, more stuff settling out,  
2       plankton, water's warmer, you get increased bio-  
3       fouling. And so it may be done a little more  
4       frequently during the summer or spring than it's  
5       done in the winter.

6               MR. GARCIA: Thank you.

7               HEARING OFFICER SHEAN: Thank you.

8               MR. MCKINSEY: Thank you, --

9               MR. MITCHELL: -- have another question.

10              MR. SMITH: The example you have up on  
11       the screen, the total larvae and total fish, is  
12       that for one species?

13              MR. MITCHELL: No. That's total.

14              MR. SMITH: That's total.

15              MR. MITCHELL: That's total and --

16              MR. SMITH: All larvae?

17              MR. MITCHELL: All the larvae. This  
18       same volume, if you're interested, has similar  
19       curves for many specifics --

20              MR. SMITH: And you used the term 316B  
21       demonstration. Could you clarify what that is?  
22       Is it the same thing as a 316B study, or what is  
23       its --

24              MR. MITCHELL: It's a term that's used  
25       interchangeably over the years, because part of

1 the 316B requirement required a demonstration that  
2 the best available technology was being utilized  
3 at the intake structure. So, it's sometimes  
4 referred to as a demonstration. I apologize if I  
5 confused you.

6 MR. SMITH: So they're one and the same?

7 MR. MITCHELL: They're one and the same.

8 MR. SMITH: Thank you.

9 MR. MCKINSEY: Thank you. We're  
10 recalling Tim Hemig who is going to be speaking  
11 about the flow cap, as well as our proposed  
12 conditions of certification.

13 Tim, can you explain how the flow cap  
14 proposed in El Segundo Power II's Bio-3 works?

15 MR. HEMIG: Yes, I can. We have a chart  
16 here. It's a simple drawing showing that  
17 basically the proposed flow cap is essentially a  
18 bucket of water that we get allocated for the  
19 year. And the blue area shaded is the flow cap  
20 number which is about -- well, it's 138.7, rounds  
21 up to 139 billion gallons per day -- per year, I'm  
22 sorry, per year as a flow cap.

23 The permitted maximum under the NPDES  
24 permit is 220 billion gallons per year. The daily  
25 limits for intake one of 207 million gallons per

1 day stay in effect, as well. This is just for the  
2 annual allocation of water.

3 So it's basically restricting the  
4 facility to 63 percent of the permitted volume  
5 under this voluntary cap.

6 The next slide shows the similar buckets  
7 of water for the monthly caps to coincide with the  
8 larval populations in the spring/winter period.  
9 So for February, March and April the blue area  
10 shows that we're about 52 to 55 percent of the  
11 maximum permitted flow volume for those months  
12 that we would be restricted to under Bio-3 monthly  
13 caps.

14 MR. MCKINSEY: Are you familiar with how  
15 ESPII derived the numbers in this flow cap?

16 MR. HEMIG: Yes, I am.

17 MR. MCKINSEY: Can you explain how they  
18 were derived?

19 MR. HEMIG: Yes. Actually the next  
20 chart is a nice depiction of the way we tabulated  
21 the cap. Essentially it's a five-year period,  
22 1998 to 2002, the data that is reported to the Los  
23 Angeles Regional Water Quality Control Board for  
24 the total volume of water circulated for that  
25 year. This is for the entire facility, both

1 intake one and intake two.

2 And the average number for those five  
3 years is 139 billion gallons per year. And  
4 essentially this is an appropriate baseline, or  
5 very representative of how the facility operates,  
6 because this is the entire period of time that the  
7 El Segundo Generating Station has operated as a  
8 merchant wholesale power generator under AB-1890  
9 in the early 1998 period. Anything before 1998,  
10 the facility was operated under the jurisdiction  
11 and owned by the utility, Southern California  
12 Edison, and it's not representative of how the  
13 facility's operated in a merchant mode, and is not  
14 representative of how it will operate in the  
15 future.

16 So this is a nice baseline period. It  
17 includes all of the operating data under this kind  
18 of operating paradigm.

19 CHAIRMAN KEESE: Excuse me, that's all  
20 four units here, is what we're talking about?

21 MR. HEMIG: Yes, this would be the  
22 cooling water flow for all four units including  
23 unit intake one and intake two.

24 MR. MCCARTHY: How were the monthly  
25 limits for January, February and March derived?

1           MR. HEMIG: The monthly limits were  
2 derived in the same manner. We used the same --

3           HEARING OFFICER SHEAN: Let me interrupt  
4 you. You said January, February and March -- is  
5 it February, March, April?

6           MR. McKINSEY: February, March and April  
7 was the question.

8           MR. HEMIG: For February, March and  
9 April we derived a cap in a similar manner using  
10 the same baseline period, 1998 to 2002. And  
11 calculated the monthly flow rates for each of  
12 those years and averaged them to generate an  
13 average billion gallons per month that could be  
14 used.

15          MR. McKINSEY: Was the flow cap offered  
16 as a requirement under the California  
17 Environmental Quality Act, or was it offered as a  
18 project enhancement?

19          MR. HEMIG: The flow cap was offered as  
20 an enhancement to the project, not as a  
21 requirement under CEQA. We believe it's a major  
22 concession. We believe that because there's a  
23 strong argument that the baseline or environmental  
24 conditions that exist today are based on the  
25 maximum permitted discharge of 207 million gallons

1 per day permit limit. And that essentially  
2 restricting the facility with this flow cap is a  
3 reduction in the baseline or environmental  
4 conditions that occur today. Essentially a 63  
5 percent cap on the facility.

6 And basically in that manner, assuming  
7 that the baseline is the permitted maximum,  
8 there's a significant reduction in the amount of  
9 cooling water we can flow.

10 MR. McKINSEY: If you applied California  
11 Environmental Quality Act requirements to the  
12 intake and discharge how would this flow cap  
13 relate as far as project conditions goes?

14 MR. HEMIG: The next slide shows a  
15 summary of the CEQA guideline that we're  
16 considering here, CEQA guideline 15125 section.  
17 It requires a description of the existing  
18 environmental conditions at the time of the notice  
19 of preparation, or in this case, the filing of the  
20 application for certification.

21 And that section requires that existing  
22 environmental conditions that are described in  
23 that document normally constitute the baseline by  
24 which we measure impacts. We believe that that  
25 baseline period, or the baseline cooling water

1 flow is actually the permitted maximum of 207  
2 million gallons per day.

3 Because the El Segundo Repower project  
4 is not increasing that flow rate to 207 million  
5 gallons per day, there's no increase in flow, and  
6 therefore there's no increase in impacts.

7 However, if we interpret this guideline  
8 to say that it's the actual flow rates that are  
9 occurring at the time of the filing of the  
10 environmental document, or the AFC, -- and the AFC  
11 was filed in December of 2000 -- then it would be  
12 the conditions that occurred as of that period of  
13 time.

14 We're proposing in Bio-3 as an  
15 enhancement which essentially also meets the  
16 intent of this requirement, providing a baseline  
17 period that includes all of the operating periods  
18 under the merchant paradigm of operation at the  
19 facility. And restricts the facility in Bio-3 to  
20 that level.

21 So essentially what we're saying is the  
22 conditions are interpreted as the date of the  
23 filing of the AFC that we have done that through  
24 Bio-3, we've restricted the facility to that  
25 level.

1           The other way to look at this is to say  
2       what are the conditions as of December 2000 not  
3       including the operating periods of 2001 and 2002.  
4       So we looked at that, as well. In fact, can you  
5       go back one chart, we calculated what the flow cap  
6       would be if we excluded 2001 and 2002. So we only  
7       included 1998 through 2000. That calculates out  
8       at 139 billion gallons per year. It's the same  
9       number.

10           We believe that's -- also would be a  
11       representative period because it has to include  
12       the only periods when we operated as a merchant  
13       power generator. And it later on turns out to be  
14       the same number, rounded to 139 billion gallons  
15       per day, it would actually be .1 percent more. So  
16       it's essentially the same.

17           MR. MCKINSEY: Are you familiar with all  
18       of El Segundo's proposed conditions of  
19       certification for biology?

20           MR. HEMIG: Yes, I am.

21           MR. MCKINSEY: Can you explain them?

22           MR. HEMIG: Yes. Bio-1 is, essentially  
23       it is the funding of the Santa Monica Bay  
24       Restoration Commission, providing \$1 million in  
25       trust that would be used by the Santa Monica Bay



1 Restoration Commission to focus on studying the  
2 Bay and improving the habitat.

3 It would be used by that agency in a  
4 manner they feel it would be best utilized. We  
5 believe that they could leverage that money most  
6 appropriately, most efficiently to do some studies  
7 and habitat restoration. So they're essentially  
8 charged with developing comprehensive conservation  
9 and management plans to restore and protect the  
10 Bay. We think they can leverage the money most  
11 appropriately. And essentially this is an  
12 enhancement to the project, something we feel is a  
13 way to give back to the resources we're using in  
14 the Bay.

15 Bio-2 continues to be in our proposal,  
16 which is to do the feasibility study for aquatic  
17 filter barriers, which we've been discussing as  
18 the Gunderboom technology. And this study is  
19 still offered up and we still intend to do a  
20 study. It would be useful information for El  
21 Segundo Generating Station on the feasibility of  
22 this technology. The information could be used by  
23 other open-ocean intake structures, as well. We  
24 feel it's beneficial information to gather.

25 And then Bio-3, which we've been

1 discussing. And this is the flow caps of 139  
2 billion gallons per year for the annual discharge  
3 limit for the entire facility. And monthly  
4 limits, February, March and April in gallons, you  
5 know, a billion gallons per month.

6 There's some additional discussion about  
7 should there be action on the NPDES renewal that  
8 will come up in a couple years based on new  
9 requirements that may change that. But they would  
10 have to be based on new rules that come out and  
11 require a different outcome.

12 MR. MCKINSEY: Are you familiar with the  
13 technology, of the aquatic filter barrier  
14 technology in Bio-2?

15 MR. HEMIG: Yeah, I would say I'm  
16 familiar but I'm not an expert in that technology.

17 MR. MCKINSEY: Okay. Do you have any  
18 closing comments?

19 MR. HEMIG: Yes. Closing our oral  
20 testimony we believe that the proposed conditions  
21 of certification satisfy all the requirements,  
22 including CEQA, Clean Water Act. We believe this  
23 because we're not changing the existing intake  
24 structures; we're not changing the existing  
25 cooling water system. We're not modifying or

1 increasing the NPDES discharge flow rate for the  
2 facility.

3 We've demonstrated that there are not  
4 significant impacts associated with that existing  
5 system through studies that have been conducted  
6 throughout the years. We've provided enhancements  
7 through Bio-1, 2 and 3. Most importantly, the  
8 flow cap. To show that no matter how you look at  
9 and interpret the different requirements for  
10 determining environmental conditions with  
11 baselines, whether it be the maximum permitted  
12 discharge rate, whether it be 1998 to 2000,  
13 whether it be 1998 to 2002.

14 No matter how you look at it our  
15 proposed flow cap will maintain the existing  
16 discharge rate, will not increase the discharge  
17 rate as part of this project. Therefore, there  
18 cannot be increased impacts.

19 And then lastly, the two additional  
20 enhancements. The aquatic filter barrier study  
21 and the funding of \$1 million to do additional  
22 studies and restoration by the Santa Monica Bay  
23 Restoration Commission, we believe go above and  
24 beyond the requirements to show that we can have  
25 this project approved and still maintain

1 biological resources and environmental resources  
2 in the area.

3 MR. MCKINSEY: Are you familiar with why  
4 we're no longer proposing to fund a Fish and Game  
5 warden?

6 MR. HEMIG: Actually it's essentially a  
7 shift to the Santa Monica Bay Restoration funding,  
8 which was at the December workshop for biology.  
9 Seemed like there was more interest in doing  
10 something besides the Fish and Game warden  
11 funding. And so basically we, I think, doubled  
12 the amount of money and put it into a different  
13 trust, which would be the Santa Monica Bay  
14 Restoration Commission. So it's really a shifting  
15 over of the money.

16 MR. MCKINSEY: Thank you.

17 HEARING OFFICER SHEAN: Does that  
18 complete your direct? Why don't we --

19 MR. MCKINSEY: That concludes our direct  
20 testimony.

21 HEARING OFFICER SHEAN: Can we get your  
22 offer in terms of admission of whatever  
23 documentary testimony that you have so that we  
24 have your -- or let's do this. Let's take a 15-  
25 minute personal wastewater break --

1           CHAIRMAN KEESE: I have one question.

2           HEARING OFFICER SHEAN: Okay.

3           CHAIRMAN KEESE: With regard to Bio-3  
4 here, help me read the last two paragraphs. Are  
5 you saying if the NPDES permit established that  
6 there is no flow cap necessary?

7           MR. HEMIG: Yes. Through the next --

8           CHAIRMAN KEESE: No flow cap whatsoever?

9           MR. HEMIG: Yes. If the next NPDES  
10 renewal requires something different as compliance  
11 with the new 316B rule, which is expected in a  
12 couple years, and requires something different in  
13 the way of reduction of entrainment or changes to  
14 the intake structure that really make this whole  
15 issue go away, then that would be something that  
16 would be entertained as a change to the Bio-3.

17          CHAIRMAN KEESE: Then the word obtained  
18 means you shall request the Energy Commission to  
19 remove it? Or the Energy Commission shall  
20 automatically grant it?

21          MR. HEMIG: We would have to request  
22 those changes.

23          CHAIRMAN KEESE: I'm just trying to  
24 understand exactly what those words mean. Thank  
25 you.

1 MR. McKINSEY: We can offer up our  
2 testimony --

3 HEARING OFFICER SHEAN: Do you have the  
4 list now?

5 MR. McKINSEY: Yeah.

6 HEARING OFFICER SHEAN: Okay.

7 MR. McKINSEY: It begins with what is  
8 essentially our designated documents in the issue  
9 area of biology, page 20 of our written testimony.  
10 And it essentially cites the historical docket  
11 record of the documents that pertain to biology,  
12 and I will read them out loud.

13 AFC section 5.6 and appendix H to the  
14 AFC. Data request 6 -- these are data requests  
15 and the data responses 6 through 10, 45, 53 to 55,  
16 and 78 to 85. Those were all docketed on March  
17 28, 2001. And data requests and responses Coastal  
18 Commission 1, 17 and 25. And data requests and  
19 data responses U.S. Fish and Wildlife Service 1, 2  
20 and 3. And those were all docketed on April 18,  
21 2001. And finally, data responses 156 through 161  
22 docketed on May 30th.

23 There were supplemental responses filed  
24 to data responses 6, 10, 81 through 84, and a  
25 further supplemental response to data request 6,

1 all docketed on April 18th. And supplemental  
2 response to docket -- to 157 docketed on May 7th.

3 We also offer figures 1, figures 2,  
4 figures 3 and figures 4 to our written testimony;  
5 as well as our written and our rebuttal testimony,  
6 and our testimony here today as our testimony in  
7 this matter.

8 MR. ABELSON: Just a clarification on  
9 that last figure 1 through 4, are those the  
10 figures that were used in today's presentation?

11 MR. MCKINSEY: No, figures 1 through 4  
12 in our written testimony.

13 MR. ABELSON: Oh, okay.

14 MR. MCKINSEY: So our written testimony  
15 inclusive of figures --

16 MR. ABELSON: Very good, thank you.

17 HEARING OFFICER SHEAN: All right, is  
18 there objection to admission of the applicant's  
19 evidence? Hearing none, it's admitted.

20 So we can take a break --

21 MR. ABELSON: Mr. Shean, before we do  
22 that, can I just suggest a couple things that  
23 would help me with my planning during the break  
24 period?

25 We'd like to try to go ahead and

1 establish our machine which has some glitches with  
2 it, if that's acceptable to Mr. McKinsey. And it  
3 would be my anticipation, unless otherwise  
4 directed obviously by the Committee, to begin with  
5 staff --

6 HEARING OFFICER SHEAN: So you're not  
7 going to do any cross?

8 MR. ABELSON: We're going to reserve  
9 that at the moment, not waive, reserving.

10 HEARING OFFICER SHEAN: Okay, and does  
11 your total team --

12 MR. ABELSON: Yes, my understanding --

13 HEARING OFFICER SHEAN: -- member --

14 MR. ABELSON: -- my understanding that's  
15 true, but obviously they can speak for themselves.

16 MR. FLEISCHLI: Yeah, we'll reserve, as  
17 well.

18 HEARING OFFICER SHEAN: All right. Are  
19 there any intervenors at this point want to ask  
20 questions? I think the Committee may have some in  
21 mind.

22 (Pause.)

23 MR. MCKINSEY: Hearing Officer Shean, --

24 HEARING OFFICER SHEAN: Yes.

25 MR. MCKINSEY: -- before we -- I don't



1 know if I was completed there, but I wanted to  
2 emphasize our oral testimony today, which would  
3 include our slides, as well as testimony.

4 HEARING OFFICER SHEAN: All right, well,  
5 then let's make sure that a packet of those is  
6 docketed and served, please.

7 PRESIDING MEMBER PERNELL: I just have a  
8 couple quick questions. I understand Mr. Shean  
9 has some business to take care of.

10 HEARING OFFICER SHEAN: I'm not in that  
11 big a hurry.

12 (Laughter.)

13 PRESIDING MEMBER PERNELL: My  
14 understanding is -- and anyone can answer this  
15 from the panel, I was kind of waiting until the  
16 entire panel finished, but you mentioned 10 to 12  
17 10-foot diameter pipes for reclaimed water.

18 MR. KODIS: That's correct. That's --

19 MR. McKINSEY: Go ahead and go to the  
20 podium, Mark.

21 HEARING OFFICER SHEAN: And identify  
22 yourself, please.

23 MR. KODIS: Yeah, I'm Mark Kodis. Yeah,  
24 that's correct, it's 10 to 12 10-foot diameter  
25 pipes And that's to get the cross-sectional area

1 required for 2000-plus millions of gallons a day.

2 PRESIDING MEMBER PERNELL: And that's a  
3 million gallons per day?

4 MR. KODIS: Yes.

5 PRESIDING MEMBER PERNELL: How long is  
6 the pipeline?

7 MR. KODIS: I believe the pipeline is  
8 roughly one mile going both ways, so it will be  
9 from Hyperion Treatment a mile and back,  
10 approximately a mile.

11 PRESIDING MEMBER PERNELL: But it would  
12 be theoretically in the same trench?

13 MR. KODIS: Well, I think, you know, at  
14 this point yet. You could put it in the same  
15 trench, but that would be an awful large trench.  
16 But I'm not sure how that would be accomplished.

17 PRESIDING MEMBER PERNELL: All right,  
18 and how many million gallons per day the plant now  
19 has a permit for?

20 MR. KODIS: I believe that's 207.  
21 Intake one, it's 207.

22 PRESIDING MEMBER PERNELL: Is intake one  
23 total?

24 MR. COLLACOTT: No.

25 PRESIDING MEMBER PERNELL: I'm looking

1 for total.

2 MR. COLLACOTT: The total is slightly  
3 more than 600,000 million per day.

4 PRESIDING MEMBER PERNELL: And the 316A  
5 study, when was that done?

6 MR. MITCHELL: That was done in the  
7 early '70s, like '71 through '73.

8 PRESIDING MEMBER PERNELL: And then you  
9 indicated that the 316B study I have from '77 to  
10 '78.

11 MR. MITCHELL: No, the 316B study was  
12 done in '79 through '80 -- '78 through '80.  
13 Initially there were kind of pre-316B studies  
14 conducted to establish the populations in the  
15 source water in '77 and '78.

16 PRESIDING MEMBER PERNELL: And when was  
17 the 316B study done for Scattergood?

18 MR. MITCHELL: In that same period of  
19 time, in the '78 to I think it was '80.

20 PRESIDING MEMBER PERNELL: 1980?

21 MR. MITCHELL: That's correct, 1980.

22 PRESIDING MEMBER PERNELL: And there  
23 haven't been any 316B studies since then?

24 MR. MITCHELL: No, sir.

25 PRESIDING MEMBER PERNELL: Final

1 question, is the \$1 million for the Santa Monica  
2 Bay project, does that include your filter study?  
3 Is that a different --

4 MR. HEMIG: That would be a separate  
5 study that would be done; and it is not part of  
6 the \$1 million.

7 PRESIDING MEMBER PERNELL: Do you have  
8 any idea how much that study will cost?

9 MR. HEMIG: Not right now, I do not.

10 PRESIDING MEMBER PERNELL: But the  
11 applicant will pay for it?

12 MR. HEMIG: Yes.

13 PRESIDING MEMBER PERNELL: Okay, thank  
14 you, Mr. Shean.

15 HEARING OFFICER SHEAN: I think this  
16 would go to Mr. Mitchell. Can you describe what  
17 the NPDES permit for this El Segundo unit is  
18 likely to be, when it will happen and -- let's  
19 just start with that.

20 MR. MITCHELL: I believe it's up for  
21 renewal in two years. Five? 2005.

22 HEARING OFFICER SHEAN: In 2005, okay.  
23 Perhaps, Mr. Hemig, do you think -- so that needs  
24 to be accomplished by 2005? Is that a fair  
25 statement, is that correct?

1           MR. HEMIG: Yeah, the requirements are  
2           that we have to file a renewal application 180  
3           days prior to the expiration date. The action by  
4           the Los Angeles Regional Water Board may not be  
5           before the actual expiration date, but once we've  
6           filed a renewal application then it basically  
7           starts the evaluation.

8           HEARING OFFICER SHEAN: Can you describe  
9           generally what's happening at the EPA with regard  
10          to rules related to 316B and any changes to those?

11          MR. HEMIG: Yes. There's currently a  
12          proposed rule that would affect the existing  
13          intake structures like the El Segundo cooling  
14          water system. And that, I believe, was proposed  
15          in February of last year, 2002.

16          There were comments taken and they  
17          originally had, I think, a final rule date  
18          estimate of August of this year. They  
19          subsequently changed that. I think currently the  
20          final rules now expected in February of 2004.

21          So currently they're addressing comments  
22          to the first draft, and will bring that back with  
23          probably another draft. And then final ruling in  
24          2004.

25          HEARING OFFICER SHEAN: At least as

1 proposed, are there any significant changes in the  
2 draft rules with regard to entrainment and the  
3 necessity for any studies related to entrainment?

4 MR. ABELSON: Mr. Shean, with all  
5 respect, I'm going to object to this, because I  
6 don't think this witness has established, you  
7 know, any credentials to be an expert on the  
8 current 316B rules. So, I just -- wait, you can  
9 probably get to the answers he'd provide.

10 HEARING OFFICER SHEAN: Well, let me  
11 just ask you this. Is there anyone on the panel  
12 who can address that issue?

13 MR. HEMIG: I think I can.

14 HEARING OFFICER SHEAN: Okay. Then your  
15 objection is overruled.

16 MR. HEMIG: The one draft that is out  
17 that EPA did publish, those have requirements for  
18 changes and requirements that would be standards  
19 for entrainment and impingement. And the current  
20 draft is reduction in entrainment at all  
21 facilities that use ocean cooling by X percent, I  
22 believe it's 60 to 90 percent reduction in  
23 entrainment.

24 And I am not familiar with the changes  
25 or the standards for impingement, but they're very

1 similar. There's a percentage reduction required  
2 as part of the rule.

3 There will be studies, demonstration  
4 studies to show compliance that you have the best  
5 technology available required as part of the  
6 current draft of the rule. And all of those would  
7 take effect and be required for compliance at El  
8 Segundo Generating Station's intake structures.

9 HEARING OFFICER SHEAN: So would it be  
10 your anticipation that those studies would be  
11 required in your next renewal cycle?

12 MR. HEMIG: At that point it's going to  
13 be a matter of timing, but I believe it would be  
14 incorporated into the next renewal.

15 HEARING OFFICER SHEAN: If I read your  
16 condition Bio-3 correctly, you talked about the  
17 cap being in place for one year, is that correct?

18 MR. HEMIG: It would be in place the  
19 first year and all the years subsequent to that  
20 that the new units come on line. So just to show  
21 that it's effective the first year of operation.  
22 And then subsequent years, as well.

23 HEARING OFFICER SHEAN: All right, first  
24 year, so the cap is in effect through the NPDES  
25 renewal process and any ultimate disposition by

1 the Water Board, is that correct?

2 MR. HEMIG: Yes, it would be a separate  
3 enforceable condition under our certification from  
4 the Energy Commission. And then it would be, if  
5 necessary, readdressed through the next NPDES  
6 permit renewal if something different was required  
7 by the Los Angeles Regional Water Quality Control  
8 Board.

9 HEARING OFFICER SHEAN: With respect to  
10 the feasibility study for the aquatic barrier, is  
11 it your intention, or could the condition be  
12 written such that that material would be available  
13 for your NPDES review, renewal review?

14 MR. HEMIG: Yes. We would -- that would  
15 be available. We could submit that as part of the  
16 application.

17 HEARING OFFICER SHEAN: All right,  
18 that's all I have, thank you.

19 Shall we take a true 15-minute break; we  
20 will be back for the direct examination by the  
21 Commission Staff. Thank you.

22 (Brief recess.)

23 HEARING OFFICER SHEAN: Mr. Smith has a  
24 question, and I think one of the two or both of  
25 you, Mr. Hemig and Mr. Mitchell, are the likely



1 witnesses.

2 MR. SMITH: Thank you very much. This  
3 is just a clarifying question. The NP -- the  
4 permit in 2000, did you say in your testimony that  
5 you relied on the data from the Ormond Beach 316B  
6 study only? Or did you rely on data from both the  
7 Ormond Beach and the Scattergood 316B study?

8 MR. MITCHELL: I guess I don't  
9 understand the question. The NPDES?

10 MR. SMITH: Yeah. There's been no site  
11 specific 316B study done for El Segundo, correct?

12 MR. MITCHELL: I think perhaps there's  
13 some confusion. The NPDES or the National  
14 Pollution Discharge Elimination System is a  
15 monitoring program that's associated with routine  
16 annual monitoring, okay.

17 As part of that they have to, the  
18 Regional Board that is, has to address as to  
19 whether there is an adequate 316B study on file or  
20 has been conducted. Is that what you're referring  
21 to?

22 MR. SMITH: Okay, yes. And the 316B  
23 study that is cited as part of that permit, is it  
24 information extrapolated from 316B study done for  
25 Ormond Beach?

1           MR. MITCHELL:  It's extrapolated from  
2   plankton or ichthyoplankton, larval fish  
3   concentrations from Ormond Beach Generating  
4   Station, that's correct.

5           MR. SMITH:  Okay.  Any maybe my question  
6   deals more with timing, when was that 316B study  
7   done?

8           MR. MITCHELL:  That 316B study was done  
9   in the '79 through '81 period.

10          MR. SMITH:  Okay.  And the Scattergood  
11   316B study?

12          MR. MITCHELL:  It was done basically in  
13   the same period of time.

14          MR. SMITH:  Okay.

15          MR. MITCHELL:  They're slightly out of  
16   phase by maybe a month or two, I think.

17          MR. SMITH:  Was Scattergood, was the  
18   results from the study of Scattergood relied on in  
19   any way for the --

20          MR. MITCHELL:  No.

21          MR. SMITH:  -- El Segundo?

22          MR. MITCHELL:  No.

23          MR. SMITH:  Why not?

24          MR. MITCHELL:  Because the studies were  
25   being done concurrently by two different groups.

1 HEARING OFFICER SHEAN: I'm sorry, I  
2 think he meant in the renewal of the NPDES permit  
3 for El Segundo, was there any reliance on the 316B  
4 demonstrations for Scattergood.

5 MR. MITCHELL: No.

6 MR. SMITH: And my question is why not?

7 MR. MITCHELL: And my answer is I can't  
8 tell you how the Regional Board assesses that. We  
9 submit information to them. They fill out as to  
10 whether the documents comply with, you know,  
11 whether they're on file and adequate.

12 When we submit a NPDES report we conduct  
13 a monitoring and submit the report.

14 MR. SMITH: So the data that is on file  
15 with the L.A. Regional Water Quality Control Board  
16 for the NPDES permit for El Segundo 316B data is  
17 based on Ormond and not Scattergood.  
18 Scattergood's only 3500 feet up the coast; Ormond  
19 is --

20 PRESIDING MEMBER PERNELL: Forty miles.

21 MR. SMITH: -- 40 or 50 miles.

22 MR. MITCHELL: That's correct.

23 MR. SMITH: And my only question is it  
24 seems -- it would seem logical to include  
25 Scattergood, rely on the Scattergood data. And

1 I'm just simply asking why rely on a plant 40  
2 miles up the coast as opposed to one more  
3 relatively in your own backyard.

4 MR. MITCHELL: Well, I can't answer  
5 that.

6 MR. SMITH: And you don't know the  
7 answer? Does anybody on the panel know the answer  
8 to that?

9 MR. HEMIG: Well, I was part of the  
10 renewal process for the last June 29 of year 2000  
11 renewal. And this issue was essentially that the  
12 demonstration requirements hadn't changed at that  
13 renewal. And the demonstration was -- still stood  
14 as an adequate demonstration for 316B compliance.  
15 And there is a finding in the NPDES permit, the  
16 current one, that says this facility does have  
17 best technology available and has demonstrated  
18 that they're not adverse impacts associated with  
19 these intake structures.

20 There wasn't a need to do further  
21 evaluation of 316B because there weren't any new  
22 requirements and the existing studies were still  
23 held, and the Regional Board agreed and put that  
24 finding in there again. Also with the  
25 understanding that there's new rules being

1 developed that would bring this issue up at  
2 further renewals or further years in the future.

3 And so really the demonstration was  
4 still current at the time of the renewal.

5 HEARING OFFICER SHEAN: All right, thank  
6 you very much. All right, we're going to go to  
7 the Energy Commission Staff, Mr. Abelson.

8 (Pause.)

9 MR. ABELSON: Well, they say there is  
10 nothing like getting ready for the big game to put  
11 yo on edge. And so if I stumble or mumble or act  
12 a little bit nervous I hope you all forgive me.

13 This is an important case and it's one  
14 that we've all worked on very very hard for over  
15 two years. And I'd like to begin by saying to you  
16 that unfortunately on the issue of biology there  
17 is a fundamental and very serious disagreement,  
18 Commissioner Pernell, Commissioner Keese,  
19 Advisors, Officer Shean, between the staff, a  
20 number of the agencies responsible for protecting  
21 biological resources in this state, a number of  
22 citizens and citizen groups who are concerned  
23 about those resources, and the applicant on the  
24 other side.

25 I'd like to begin briefly by providing

1       you with an opening statement as to what staff is  
2       going to present in its oral testimony and what,  
3       to a substantial degree, we have covered in our  
4       extensive written testimony.

5               And the first slide up here is capturing  
6       the main points that I would like to open this  
7       presentation with. Namely, that the evidence in  
8       this proceeding, Commissioners, will show you that  
9       number one, Santa Monica Bay and its marine  
10      resources are seriously environmentally impaired.

11             The applicant takes the position that  
12      Santa Monica Bay ecosystem, in general, and the  
13      fish populations in particular are basically doing  
14      okay, doing fine.

15             The facts, however, are that the Santa  
16      Monica Bay is a seriously impaired water body with  
17      various relevant fish species and important food  
18      chain organisms all showing serious and continuing  
19      declines over the last several decades. And our  
20      witnesses are going to speak to each point that  
21      I'm presenting to you as an opening statement in  
22      some detail shortly.

23             The evidence will also show, number two,  
24      that the proposed project is clearly part of the  
25      problem; it is not part of the solution.

1           The applicant contends that since power  
2       plants have been operating in Santa Monica Bay for  
3       the last 50 years, and the ecosystem and the fish,  
4       according to the applicant, are doing fine, this  
5       project will not have a significant adverse impact  
6       on the marine organisms of Santa Monica Bay.

7           The facts, however, are these. A) this  
8       proposed project will withdraw an enormous amount  
9       of water and an enormous number of marine  
10      organisms from the ecologically impaired Santa  
11      Monica Bay each year.

12          B) when that is combined with what other  
13      power plants in the Bay are also withdrawing for  
14      cooling water, this project's cumulative adverse  
15      entrainment impact, in particular, and to a lesser  
16      degree impingement and thermal impact, clearly  
17      will be significant at the cumulative level.

18          C) recent site-specific entrainment  
19      studies that have been done for other power plant  
20      projects in this state that use similar once-  
21      through cooling systems, have repeatedly shown  
22      that these once-through cooling systems do, in  
23      fact, cause significant adverse impacts to marine  
24      organisms.

25          The third point that you're going to

1 hear from in our oral presentation today is that  
2 the evidence will show that there are no reliable  
3 site-specific entrainment studies at El Segundo;  
4 and none have ever been done.

5 The applicant's position is that Santa  
6 Monica Bay has been extensively studied and that  
7 no further studies are needed to answer the  
8 biology issues that are presented in this  
9 particular case.

10 The facts, however, are that A) the  
11 reports cited by the applicant are either  
12 irrelevant, inadequate and/or scientifically  
13 unreliable for answering the important biological  
14 resource issues in this case.

15 B) there are, in fact, no reliable site-  
16 specific entrainment studies which prove that this  
17 project will not have a significant adverse impact  
18 on the marine organisms at Santa Monica Bay.

19 C) a current, well-designed, site-  
20 specific entrainment study is badly needed to  
21 scientifically answer the biological questions  
22 that are at issue in this case.

23 Fourth point. The evidence will show  
24 you that the applicant's flow caps will not  
25 stabilize the conditions as they currently exist,



1 the status quo ante; nor will they eliminate  
2 serious seasonality concerns that our staff has  
3 and is voiced in our testimony.

4 The applicant's position is that the  
5 proposed project will not have a significant  
6 adverse biological impact because of certain  
7 either annual or limited monthly caps that they  
8 have recently proposed for the months of February,  
9 March and April.

10 The facts will show you that A) various  
11 fish and other marine organisms actually reproduce  
12 year-round in Santa Monica Bay, not just during  
13 the months of February, March and April.

14 B) the specific flow caps proposed by  
15 the applicant will not maintain the existing  
16 conditions, what I call the status quo ante, and  
17 the present flow caps will actually allow  
18 entrainment to increase at important reproductive  
19 times of the year.

20 Finally, the evidence will show that  
21 restoring and enhancing the marine resources in  
22 Santa Monica Bay is both required and it is  
23 feasible. The applicant's position is that it has  
24 recently offered a million dollars to Santa Monica  
25 Bay Restoration program as an enhancement for this

1 program. The facts will show you that California  
2 law requires that when proposed projects are  
3 located in the coastal zone, as this project is,  
4 marine resources must be enhanced and, where  
5 feasible, restored through, among other things,  
6 quote, "minimizing the adverse effects of  
7 entrainment" unquote.

8 The applicant's proposed flow caps will  
9 do nothing to restore and enhance where feasible  
10 the marine organisms adversely impacted by this  
11 project. And the one million dollars that's been  
12 offered by the applicant is far below, far below  
13 what other power plant projects are feasibly  
14 extending. And it has not been shown by the  
15 applicant that they cannot feasibly afford to pay  
16 any more.

17 C) replacing project ocean water with  
18 wastewater from the nearby Hyperion Treatment  
19 Plant. It appears to be an entirely feasible  
20 alternative. And if it is adopted it will  
21 completely avoid any and all of the adverse  
22 biological impacts that this project would cause.

23 Finally, the applicant's stated concerns  
24 about thermal temperature rises and chlorine  
25 problems in the wastewater alternative are based

1 on a strawman and they are completely unsupported  
2 by the facts, as we will demonstrate.

3 With that I'd like to take a moment  
4 before we go to the next part of our presentation,  
5 and introduce to you a truly outstanding panel of  
6 witnesses on the topic of biology. I'm going to  
7 take the liberty, unless I'm ordered to do  
8 otherwise by the Committee, and suggest that  
9 number one, I have four biologists up here. They  
10 have operated as a team. And with the Committee's  
11 permission I would very briefly like to summarize  
12 their credentials for you, rather than to take the  
13 time one-on-one.

14 HEARING OFFICER SHEAN: If it's for the  
15 purpose of qualifying them as an expert, that's  
16 fine.

17 MR. ABELSON: Okay. I'd like to  
18 introduce sitting immediately to my right, to your  
19 right, as well, Dr. Noel Davis, who has a PhD in  
20 biological oceanography from the Scripps Institute  
21 of Oceanography. She has over 25 years of  
22 professional experience with southern California  
23 marine ecosystems, and over 25 years of preparing  
24 environmental impact reports that address both  
25 compliance and CEQA.

1           For all of these witnesses we have  
2           detailed r, sum, s attached that go on for pages in  
3           some instances, in terms of their credentials.

4           The next witness on our biology panel is  
5           Dr. Mike Foster. Dr. Foster received a bachelor  
6           of science degree from Stanford University in  
7           chemistry and physics; and then went on to receive  
8           a Phd in biology from the University of California  
9           at Santa Barbara. He is a Professor Emeritus at  
10          Moss Landing Marine Labs where he taught for -- is  
11          it over 30 years, Mike -- 25 years.

12          Dr. Foster has four published books to  
13          his credit, and over 65 peer-reviewed articles on  
14          marine ecology to his credit. He has also  
15          consulted extensively for numerous government  
16          agencies, as well as for various power companies  
17          on issues related to marine biology.

18          Our third witness on biology is Dr. Greg  
19          Cailliet. Dr. Cailliet has a PhD in ichthyology,  
20          which he received from the University of  
21          California at Santa Barbara. He's been a  
22          professor for 31 years at the Moss Landing Marine  
23          Lab. He has more than 90 peer-reviewed papers on  
24          marine ecology to his credit. And he's been  
25          working for over six years as a consultant to

1 agencies such as the Regional Water Quality  
2 Control Boards, the California Energy Commission  
3 and so on.

4 Finally I'd like to introduce you to the  
5 fourth member of our biology team, Dr. Pete  
6 Raimondi. Dr. Raimondi has a PhD in marine  
7 biology which he received at Santa Barbara in  
8 1988. His current position is as a professor of  
9 marine biology at the University of California at  
10 Santa Cruz. His expertise is in the design and  
11 analysis of marine monitoring programs and near-  
12 shore marine ecology.

13 He is the principal investigator of the  
14 largest near-shore monitoring program going on in  
15 the United States. He is the author of over 50  
16 peer-reviewed papers and chapters. And he has  
17 been a consultant to numerous agencies including  
18 the Regional Water Quality Control Boards, the  
19 California Coastal Commission, and for Energy  
20 Commission projects, including San Onofre, Moss  
21 Landing, Morro Bay and so on. Excuse me, San  
22 Onofre obviously is not our case.

23 With that I'd like to complete the  
24 introduction by saying that we intend, when we  
25 finish the biology portion, to move on to some

1 other issues that are important but related to  
2 that, namely the alternatives and the requirement  
3 to restore and enhance under the Coastal Act.

4 At that time I will ask other members,  
5 Mr. Tom Luster of the Coastal Commission and three  
6 other members of our staff to come up and replace  
7 the current panel, and we'll talk about those  
8 other issues, and I'll introduce them at that  
9 time.

10 With that background in mind, I'd like  
11 to ask Dr. Davis, since she actually was the lead  
12 consultant on this effort, some basic introductory  
13 questions that will get us, I think, onto the  
14 substance.

15 Dr. Davis, did you and your team of  
16 biologists prepare and have you -- yes?

17 HEARING OFFICER SHEAN: Before we  
18 proceed to that, I'll ask if there's any objection  
19 to qualifying Ms. Davis as an expert.

20 MR. MCKINSEY: The applicant has no  
21 objections at this time to qualifying as an  
22 expert, however we would reserve the ability to  
23 cross-examine the witnesses on their experience  
24 just for purposes of either credibility as to  
25 their testimony during cross-examination.

1 HEARING OFFICER SHEAN: And why don't we  
2 do as we did with the applicant's panel, let's  
3 have them stand and be sworn.

4 MR. ABELSON: I'd like Mr. Schoonmaker,  
5 Rick York, Mr. Sapudar and Mr. Luster also to  
6 stand, please.

7 Whereupon,

8 NOEL DAVIS, MICHAEL FOSTER, GREGOR CAILLIET,

9 PETER RAIMONDI, JAMES SCHOONMAKER, RICK YORK

10 RICHARD SAPUDAR and TOM LUSTER

11 were called as witnesses herein, and after first  
12 having been duly sworn, were examined and  
13 testified as follows:

14 HEARING OFFICER SHEAN: All right.

15 MR. McKINSEY: Excuse me, I did have a  
16 question about Mr. Luster as a witness for the  
17 Staff. I don't recall that he was proffered as a  
18 witness for the staff and I don't recall that --

19 MR. ABELSON: We -- yeah, yeah, --

20 MR. McKINSEY: -- we got a r, sum, or CV  
21 for him.

22 MR. ABELSON: We'll reserve that issue  
23 till we get there, and we'll explain what our  
24 thinking is, so if you'd just reserve the  
25 objection until that time we can explain it, I

1 think, at that point.

2 HEARING OFFICER SHEAN: Okay.

3 DIRECT EXAMINATION

4 BY MR. ABELSON:

5 Q Yes, I'd like to begin, if I could, by  
6 asking Dr. Davis whether she served basically as  
7 the lead coordinator, if I can use that term, for  
8 the biology resource team.

9 DR. DAVIS: That's correct, I  
10 coordinated the efforts of the team.

11 MR. ABELSON: Dr. Davis, did you and  
12 your team prepare, and have you reviewed, the  
13 biological resources and the related alternatives  
14 section of the staff documents?

15 DR. DAVIS: Yes, we did, and I have.

16 MR. ABELSON: What I'd like to do, Mr.  
17 Shean, if it's helpful to you, if not we can  
18 handle it some other way, is we have three major  
19 documents that staff is eventually going to want  
20 to move into evidence. Those are the FSA, our  
21 written direct testimony and our written response  
22 testimony. So, with your permission I'd like to  
23 have all of those marked as exhibits.

24 HEARING OFFICER SHEAN: We won't mark  
25 them as exhibits, we'll take them as described.



1           MR. ABELSON: All right. With regard to  
2 those documents, Dr. Davis, the final staff  
3 assessment which is docketed September 11th of  
4 '02, the written direct testimony which was  
5 docketed on January 22nd of '03, and the written  
6 response which was docketed on February the 10th,  
7 are there any changes that you or your team  
8 members want to make to that written material at  
9 this time?

10          DR. DAVIS: No, we stand by the  
11 documents as they've been submitted.

12          MR. ABELSON: Are the factual statements  
13 therein correct to the best of you and your team's  
14 knowledge?

15          DR. DAVIS: Yes, to the best of our  
16 knowledge.

17          MR. ABELSON: And do the opinions  
18 expressed by you and your team therein reflect  
19 your best professional judgment on the matters in  
20 question?

21          DR. DAVIS: Yes, they do.

22          MR. ABELSON: I'd like to lay a  
23 foundation for one other area before we actually  
24 go into content. And that is to ask you, Dr.  
25 Davis, if you and your team have reviewed the AFC,

1 the application for certification, filed by the  
2 applicant in this case, and related appendix H  
3 concerning biology issues?

4 DR. DAVIS: Yes, we have.

5 MR. ABELSON: Have you reviewed with  
6 your team the data responses filed both, as I  
7 understand it, in 2001 and in 2002 on issues of  
8 biology?

9 DR. DAVIS: Yes, we have.

10 MR. ABELSON: Have you reviewed a  
11 document that the applicant docketed called a  
12 supporting entrainment impact analysis that they  
13 docketed in December of 2001?

14 DR. DAVIS: Yes, we all reviewed that.

15 MR. ABELSON: All right. And have you  
16 also reviewed the applicant's written direct and  
17 rebuttal testimony filed January 22nd and February  
18 10th respectively of this year?

19 DR. DAVIS: We have.

20 MR. ABELSON: Very good. Have you  
21 listened carefully -- and I would ask this of all  
22 the members of the team, have you all listened  
23 carefully to the applicant's oral testimony this  
24 morning?

25 DR. DAVIS: Yes.

1 DR. FOSTER: Yes.

2 DR. CAILLIET: Yes.

3 DR. RAIMONDI: Yes.

4 MR. ABELSON: Mr. Shean, I'd like to  
5 make a request of the Committee if possible. It's  
6 about a quarter to noon, and I can start with our  
7 witness, but we're only going to end up going  
8 about 15 minutes before the lunch break.

9 With the Committee's approval I would  
10 like to request that we take our break now and go  
11 ahead and start. I'm anticipating about a two-  
12 hour presentation total. If we could start after  
13 lunch I think that would keep the continuity  
14 going.

15 HEARING OFFICER SHEAN: Let's see what  
16 the pleasure of the Committee is. We'll go off  
17 the record.

18 (Off the record.)

19 HEARING OFFICER SHEAN: We will take a  
20 one-hour lunch break and return here at a quarter  
21 to 1:00. And we'll begin with the staff's direct  
22 presentation at that point.

23 Thank you very much.

24 (Off the record.)

25 HEARING OFFICER SHEAN: Is there a

1 member of the public who is present who would like  
2 to make a comment? Hearing none, we'll now go off  
3 the record and resume at a quarter to one.

4 (Whereupon, at 11:51 a.m., the hearing  
5 was adjourned, to reconvene at 1:00  
6 p.m., this same day.)

7 --o0o--

## 1 AFTERNOON SESSION

2 1:00 p.m.

3 HEARING OFFICER SHEAN: We're now going  
4 to do further direct by the Commission Staff. Let  
5 me just anticipate that in approximately two hours  
6 or so we'll take a caffeine break. Unless direct  
7 and cross-examination has gotten a lot more  
8 scintillating than historically it's been, we're  
9 going to need it.

10 (Laughter.)

11 (Off-the-record discussions.)

12 PRESIDING MEMBER PERNELL: We have the  
13 packets so we can follow along with the packets.  
14 Let the audience see --

15 MR. ABELSON: Right, what's going on.  
16 Shall I go ahead?

17 HEARING OFFICER SHEAN: Yes, please.

18 MR. ABELSON: Commissioners, Advisors,  
19 Officer Shean, thank you all for entertaining us  
20 after lunch and what I'd like to do is just real  
21 quickly recap the opening statement points which  
22 we'll then go into the actual testimony on.

23 Basically we believe the evidence is  
24 going to show you the Santa Monica Bay and the  
25 marine resources of that Bay are, in fact,

1 seriously impaired.

2 We're going to show you that this  
3 project is clearly part of the problem, it is not  
4 part of the solution. We're going to show you  
5 that there are, in fact, no reliable site-specific  
6 entrainment studies that have ever been done for  
7 El Segundo.

8 We're going to show you that the  
9 applicant's flow caps will not maintain existing  
10 conditions, what I call the status quo ante. And  
11 will not eliminate serious seasonality concerns  
12 that staff have.

13 And finally we're going to show you that  
14 restoring and enhancing the marine resources of  
15 Santa Monica Bay is required, and that it's  
16 feasible to do.

17 HEARING OFFICER SHEAN: Mr. Abelson,  
18 since I know you're not using the status quo ante  
19 just because you like the Latin, why don't you  
20 describe for the Committee what you mean by that  
21 so it's clear.

22 MR. ABELSON: Well, the word status quo  
23 ante means to keep things as they are before  
24 something happens. And essentially it gets into  
25 the question of what is the proper baseline under

1 CEQA. And we will talk about that at some length  
2 through our witnesses.

3 HEARING OFFICER SHEAN: And is it what  
4 you're saying is that the ante part of that is  
5 prior to a combination of the flow caps and what  
6 the staff has called the cessation of operations  
7 of units 1 and 2, is that correct?

8 MR. ABELSON: That's basically correct.  
9 And as I said, we'll have a witness who will  
10 actually explain the concept further.

11 So with that I'd like to actually begin  
12 our direct testimony starting with Dr. Davis.

13 DIRECT EXAMINATION - resumed

14 BY MR. ABELSON:

15 Q And asking Dr. Davis if you would please  
16 describe what the next Vugraph, please. Please  
17 describe the key physical features of the proposed  
18 project that have caused you and your colleagues  
19 to become concerned about its potential adverse  
20 biological marine resource impacts.

21 DR. DAVIS: Well, as Mr. Mitchell told  
22 you this morning, it's a very large structure.  
23 And we have a diagram of it with a scaled diver,  
24 that's me, my size, I'm drawn to scale both inside  
25 the opening of the pipe and next to the upturned

1 structure. And we also have the same diagram in a  
2 little bit more detail on that poster board.

3 But basically the opening is 11 feet by  
4 14 feet, so it's really huge. Mr. Mitchell  
5 described it as akin to the size of a garage;  
6 that's probably a pretty good analogy. The one  
7 that I was thinking of was it's about the size of  
8 the wall of my hotel room.

9 MR. ABELSON: So you're saying if you go  
10 into the front part of the suites that we have and  
11 look at the size of that room, that would more or  
12 less approximate 11 by 14?

13 DR. DAVIS: Yeah, actually a little bit  
14 smaller, but that's about the right ballpark. And  
15 it's an upturned pipe, I think, as Mr. Mitchell  
16 explained, it's a big upturned open pipe that has  
17 this slab of concrete on top, which is the  
18 velocity cap.

19 MR. ABELSON: What about the water  
20 volume that's being drawn through this large pipe?

21 DR. DAVIS: Well, as you might expect  
22 from such a large structure, it withdraws a really  
23 large amount of water from the Bay every year.  
24 Even at the proposed flow cap of 139 billion  
25 gallons per year, that's enough water to cover



1 425,000 acres of land, or basically Los Angeles,  
2 with water a foot deep every year.

3 MR. ABELSON: Can you tell us in  
4 addition to the size of the structure and the  
5 volume of water anything about the speed at which  
6 that water is being withdrawn?

7 DR. DAVIS: Well, yes. In the pipe,  
8 itself, the flow is 4.2 feet per second. And to  
9 give you a basis for comparison, in the new 316B  
10 regulations for new structures that EPA put out a  
11 couple of years ago, they recommend 0.5 feet per  
12 second as an intake speed that's protective of  
13 fish. So this is eight times the recommended  
14 speed.

15 MR. ABELSON: Now is that the regs we've  
16 heard about that haven't been adopted, or are  
17 those regs that actually are already on the books?

18 DR. DAVIS: No, those are the regs for  
19 new intakes, and they have been adopted. The ones  
20 that we've been talking about are the proposed  
21 regulations for existing intakes that are still a  
22 couple of years down the line.

23 PRESIDING MEMBER PERNELL: Is that  
24 federal EPA regs you're talking about?

25 DR. DAVIS: Yes, that's correct. In

1 2001 they came out with new rules for new intake  
2 structures as opposed to existing structures like  
3 the El Segundo intake.

4 MR. ABELSON: Now, I understand that in  
5 anticipation of the hearings on January the 16th  
6 you actually went and conducted an onsite  
7 surveillance dive, and that you prepared about a  
8 five-minute video to show the Committee what you  
9 actually observed out there.

10 So, if we could go ahead and queue up  
11 that video. There is a voice-over. We're hopeful  
12 that it comes through clearly. If not, we'll  
13 rewind it and she can tell you, with the voice.

14 (Video played.)

15 MR. ABELSON: I may ask you to freeze  
16 one or two of these frames.

17 (Video continued.)

18 MR. ABELSON: Would you freeze that  
19 right there. So, sorry, I interrupted the voice-  
20 over, but basically that's the units 1 and 2 off  
21 to the --

22 DR. DAVIS: Well, actually it's to the  
23 northeast at that part of the Bay.

24 MR. ABELSON: But they're on the left  
25 side of the -- they're to the left?

1 DR. DAVIS: Yeah, they're directly  
2 behind me.

3 MR. ABELSON: And then units 3 and 4 are  
4 the ones --

5 DR. DAVIS: Oh, I see, --

6 MR. ABELSON: -- to the right side?

7 DR. DAVIS: -- yeah, yeah, that's right.  
8 This is units 1 and 2, and this is 3 and 4.

9 MR. ABELSON: Okay. Go ahead.

10 (Video continued.)

11 MR. ABELSON: Freeze. So when you say  
12 the upward turned pipe, is that this part here?

13 DR. DAVIS: That's correct.

14 MR. ABELSON: And is this the velocity  
15 cap across the top that you're talking about?

16 DR. DAVIS: Yes.

17 MR. ABELSON: Okay, proceed.

18 (Video continued.)

19 MR. ABELSON: Okay, can we get the  
20 lights up, please?

21 Dr. Davis, a couple of questions about  
22 that dive and what else you observed during the  
23 time you were down there.

24 With regard to intake unit 2 which you  
25 showed at the very end, did you have any sense

1       that cooling water was being drawn into that  
2       intake, or was it neutral, or was it doing  
3       something else, at least based on what you were  
4       able to observe when you were out there?

5               DR. DAVIS:  It appeared to be  
6       discharging heated water when we were out there,  
7       so I think that they must have been heat treating.  
8       There was a boil of water on the surface, and it  
9       was warm.  And when we dived on it we could feel  
10      warm water coming out.

11             MR. ABELSON:  So the fact that you  
12      didn't see any fish being affected in the sense of  
13      being sucked in would be the fact that the water  
14      was, among other things, going out?

15             DR. DAVIS:  Well, that would be, yes,  
16      one explanation.

17             MR. ABELSON:  Okay.  In summary on the  
18      physical nature of the project, itself, is it  
19      correct to say, Dr. Davis, that based on your  
20      knowledge and your observation the proposed  
21      project's cooling system will use a very large  
22      fish-attracting entrainment structure that will  
23      withdraw large volumes of ocean water at high  
24      speeds from Santa Monica Bay each year?

25             DR. DAVIS:  That's my observation.

1 MR. ABELSON: Next slide, please. I'd  
2 like to turn, if I could, Dr. Davis, to an  
3 overview for the Committee, of the physical area  
4 that this project is taking place in so that we  
5 can get a little sense of the area for purposes of  
6 the ecology.

7 Could you please briefly describe the  
8 physical location of this region including Santa  
9 Monica Bay?

10 DR. DAVIS: Well, Santa Monica Bay is  
11 located in the Southern California Bight, and  
12 that's basically the area between Point Conception  
13 and the Mexican border. And Santa Monica Bay is  
14 sort of a cove and a bay-ment pretty much in the  
15 center of the Bight.

16 MR. ABELSON: Now, we have this thing  
17 called the Southern California Bight, and this is  
18 the outline of it here from Point Conception and  
19 all the way down to the Mexico border?

20 DR. DAVIS: Right.

21 MR. ABELSON: Why does that have a name  
22 on it, why is it called the Southern California  
23 Bight?

24 DR. DAVIS: Well, the shape of it; that  
25 it, in itself, is a bit of a cove or an

1       indentation in the coastline.

2               MR. ABELSON:  Could we bring up the next  
3       slide, please.

4               Dr. Davis, what can you tell us about  
5       what's represented here in relationship to the  
6       project that we're talking about?

7               DR. DAVIS:  Well, this is Santa Monica  
8       Bay, the project, which is right here, is located  
9       in about the southern third of Santa Monica Bay,  
10      which again, as we explained before, is a cove  
11      within the Southern California Bight.  The  
12      coastline is about 40 miles long, and this shows  
13      you the depth contours.

14              MR. ABELSON:  All right, now talking  
15      about those depth contours, I don't know if it's  
16      readable to people on the screen, but hopefully  
17      the Commissioners can look at their hard copies,  
18      and I want to call your attention to the contour  
19      line with the number 20 marked on it.

20              DR. DAVIS:  Yes, that's the 20 meter  
21      line, or approximately 65 feet.  And you can see  
22      it.  Basically the shallow water is a fairly  
23      narrow band within the Bay.

24              MR. ABELSON:  Now I want to call your  
25      attention to those hash lines that you can see

1 around the various projects, Hyperion, Scattergood  
2 and El Segundo. And I'm wondering if you could  
3 explain for the Committee what those hash lines  
4 represent?

5 DR. DAVIS: These hash lines?

6 MR. ABELSON: Yes.

7 DR. DAVIS: Those are the outfall pipes  
8 from the Hyperion outfall.

9 MR. ABELSON: Is that the one to five  
10 mile outfall?

11 DR. DAVIS: That's correct.

12 MR. ABELSON: And are there any lines  
13 within the 20 meter, 60 foot range --

14 DR. DAVIS: Yeah, these little short  
15 lines are the intake and outfall pipes of El  
16 Segundo and the Scattergood Generating Station.

17 MR. ABELSON: As far as you know is the  
18 Redondo Beach Generating Station also withdrawing  
19 water from within that 20 meter range?

20 DR. DAVIS: That's correct.

21 MR. ABELSON: Can you describe briefly  
22 for the Committee the beneficial uses that people  
23 tend to make of Santa Monica Bay?

24 DR. DAVIS: Well, Santa Monica Bay  
25 provides basically access to the coast and is a

1 very important resource for over 10 million people  
2 that live in the Los Angeles area.

3 The dollar value of coastal based  
4 recreation, including sports fishing, has been  
5 estimated to be over a billion dollars per year.

6 MR. ABELSON: That's for fishing-  
7 related?

8 DR. DAVIS: Coastal based recreation,  
9 I'm not sure it's only fishing.

10 MR. ABELSON: All right. Are there  
11 industrial uses made of the Bay, as well as  
12 recreational uses?

13 DR. DAVIS: Yes. These would include  
14 the three power plants that we've been talking  
15 about, Scattergood, El Segundo and Redondo Beach.  
16 As well as there's a Chevron refinery in that  
17 area, too.

18 MR. ABELSON: Very good. I'd like to  
19 bring up the next slide and direct my questioning  
20 now to Dr. Cailliet, if I could.

21 DIRECT EXAMINATION

22 BY MR. ABELSON:

23 Q Dr. Cailliet, based on your knowledge --

24 CHAIRMAN KEESE: Excuse me, can I --

25 MR. ABELSON: I'm sorry? Yes.



1           CHAIRMAN KEESE:  Dr. Davis, when you  
2       were describing the intake structure, are you  
3       disagreeing with applicant's amount of fish  
4       captured on an annual basis?

5           DR. DAVIS:  The impingement data?

6           CHAIRMAN KEESE:  Correct.

7           DR. DAVIS:  No, I'm not.

8           CHAIRMAN KEESE:  They indicated it's  
9       insignificant.  You're indicating that number is  
10      significant?

11          DR. DAVIS:  No, that's not what I said.  
12      What I said is that the structure, itself, is very  
13      large, and that it withdraws a large amount of  
14      water.  I don't disagree with the numbers of fish,  
15      I mean, they've collected them and counted them,  
16      that have been impinged.

17          CHAIRMAN KEESE:  So, you're not  
18      suggesting that impingement is a problem then?  Or  
19      are --

20          DR. DAVIS:  From my analysis of the data  
21      impingement, by itself, if that was the only thing  
22      the power plant was doing and those were the  
23      numbers, probably would not be a problem.

24          But it adds to the problems of  
25      entrainment.

1 MR. ABELSON: Maybe I can help along a  
2 little further in the line that you're going on.

3 CHAIRMAN KEESE: What I thought I heard  
4 you say was significant impact on fish. And  
5 I'm --

6 MR. ABELSON: Well, we haven't got there  
7 yet, on that issue yet.

8 CHAIRMAN KEESE: Okay. It's not a  
9 significant impact on fish, is that what --

10 DR. DAVIS: No, as Mr. Mitchell  
11 explained to you there's three different ways by  
12 which the cooling water system has an impact on  
13 the marine environment. One is the heated  
14 temperature discharges.

15 The other is impingement, which are the  
16 numbers that he showed you, which are the adult  
17 fish that swim into the pipe, get caught and can't  
18 escape; get killed, go to their deaths.

19 And the third is the entrainment which  
20 is the sucking in of all the eggs and larvae, as  
21 well as the smaller creatures that are part of the  
22 food base that go in with the water.

23 CHAIRMAN KEESE: I understand -- I  
24 thought I heard you say that significant numbers  
25 of fish --

1 DR. DAVIS: No, I think --

2 CHAIRMAN KEESE: -- were captured, --

3 DR. DAVIS: -- perhaps what --

4 CHAIRMAN KEESE: -- and I --

5 DR. DAVIS: -- perhaps what I said is  
6 that there's lots of fish that are attracted to  
7 the structure. In other words that there's --  
8 when I dived it I observed a lot of fish around  
9 the structure.

10 CHAIRMAN KEESE: Okay.

11 DR. DAVIS: I did not, at this point,  
12 draw any conclusions about --

13 CHAIRMAN KEESE: Whether that was good  
14 or bad?

15 DR. DAVIS: That's correct.

16 CHAIRMAN KEESE: All right, thank you.

17 DIRECT EXAMINATION

18 BY MR. ABELSON:

19 Q All right, so with a little background  
20 of where we're talking about and the type of  
21 structure that we're talking about, Dr. Cailliet,  
22 based on your knowledge and review of the  
23 literature, would you describe, in general, the  
24 biological condition of Southern California Bight  
25 and the Santa Monica Bay at this time?

1 DR. CAILLIET: Yes, I'd be happy to.

2 Based upon my review and the review of my team of  
3 the peer-reviewed scientific literature on the  
4 fishes and other organisms in the Southern  
5 California Bight and the Santa Monica Bay, I would  
6 interpret those data as saying that the Santa  
7 Monica Bay is an impaired body of water,  
8 especially under the Clean Water Act 303.

9 One thing I might note is that Santa  
10 Monica Bay was designated as a first national  
11 estuary program designee. That doesn't say that  
12 it is an estuary, but what it does do is point out  
13 that there might be some situations and some  
14 problems that need to be repaired, and that would  
15 help get funding and develop management plans for  
16 such a process.

17 I do believe it's degraded, and the  
18 evidence that I would use, based on these papers,  
19 is that many species of fishes have been  
20 exhibiting serious declines over several decades.

21 MR. ABELSON: Now, let me call your  
22 attention to the graph that's up on the screen  
23 indicating the ten most abundant fish species  
24 impinged at El Segundo. And I'd ask you whether  
25 or not that graph, in effect, tells you the sort

1 of fish that tend to be in the vicinity of the  
2 intake, itself.

3 DR. CAILLIET: Yes. Without going into  
4 specific detail, you can see this list which  
5 actually came from NBC in 1999 as the top ten  
6 species of fishes that are in the same environment  
7 that Dr. Davis described on her video.

8 There are additional species to that,  
9 but that would be a fair description of the kinds  
10 of fishes that are living near the mouth of the  
11 intake.

12 MR. ABELSON: May we have the next  
13 slide, please?

14 DR. CAILLIET: And impingement data like  
15 that have been used in several publications, the  
16 main one of which is Herbison, et al, in 2000,  
17 where they used fish impingement rates on  
18 different power plant intakes as an index over  
19 years 1950s on, I believe, I can't read the --  
20 several decades.

21 And what you can see, where the arrows  
22 are on the left, in the slope going down the  
23 arrows are on the right, that in every example up  
24 there, there has been a decline in the biomass of  
25 fishes taken per volume of water that the intakes

1 of these power plants used as a fishery  
2 independent estimate of fish biomass in Santa  
3 Monica Bay and in the Southern California Bight.

4 I would state that this evidence is  
5 fairly clear that indeed the fish populations have  
6 been declining. I'm not much for investing money,  
7 but it kind of looks like what's happened to the  
8 stock market to me.

9 MR. ABELSON: The fish that are on this  
10 particular graph, the queenfish, white croaker,  
11 yellow croaker, et cetera, are those the same ones  
12 that were found to be around, or at least impinged  
13 at the entrainment site?

14 DR. CAILLIET: Yes, they're among that  
15 list, but they -- this is not an inclusive list.  
16 This came from one figure in that paper, but they  
17 didn't include all the species.

18 MR. ABELSON: Okay. And that paper is  
19 from the year 2000, so it's current information?

20 DR. CAILLIET: Yes.

21 MR. ABELSON: All right. You've  
22 indicated that certain species of fish that are  
23 present around the intake are in decline. Do any  
24 of these degraded or declining species produce  
25 ichthyoplankton which is a fancy word, as I

1 understand it, for fish eggs and baby fish, or  
2 zooplankton in the shallow waters that we're  
3 concerned about, this 20-meter range, such as  
4 those that are near the project? Do any of them  
5 produce fish -- babies in that area?

6 DR. CAILLIET: Yes, indeed. Species on  
7 this list and the previous list all produce  
8 pelagic larvae, open water column larvae, if those  
9 adults are spawning there, or in some close  
10 proximity to the intake, it could take those  
11 larvae in.

12 You mentioned zooplankton. I may say it  
13 a little different than you do, sorry, but that  
14 would be animal plankton, things like copepods,  
15 small crustaceans. And, indeed, there's been a  
16 more than 50-year record studying with the  
17 California Cooperative Oceanic Fisheries  
18 investigations, the same survey that Mr. Mitchell  
19 referred to earlier, where they've been looking at  
20 zooplankton levels from the 1950s on. And a very  
21 scary paper by Roemmich and McGowan in 1995  
22 indicated there's been 80 percent decline since  
23 1951 in the zooplankton biomass in the California  
24 current.

25 MR. ABELSON: Is the zooplankton a fancy

1 word for the food chain organisms?

2 DR. CAILLIET: Yes, it's definitely  
3 the -- well, there's phytoplankton, which are  
4 plants; there's zooplankton, which are the animals  
5 that graze on them. And then several groups of  
6 fishes and other invertebrates feed on those.

7 So it would indicate there has been,  
8 over that time period, a decline in fish forage,  
9 or in food items in general.

10 But back to the fish larvae, that's a  
11 separate question. Fish larvae really are  
12 plankton, too; they're called ichthyoplankton  
13 meaning fish plankton. Those are larval fishes.

14 MR. ABELSON: All right. Next slide,  
15 please. Can I ask you what this slide would tell  
16 us about the situation at the actual intakes in  
17 question?

18 DR. CAILLIET: Yes, this is a list of,  
19 again, some of the species of fishes whose larvae  
20 were taken and you'll notice the names on there  
21 are quite similar to the previous list with a  
22 couple of exceptions.

23 And this would be the types of fish  
24 larvae that could be entrained into the power  
25 plant intake if, indeed, entrainment studies at



1       that plant had been done.

2               MR. ABELSON:  So all of these fish that  
3       are listed here basically have baby fish that do  
4       hang around the entrainment, the intake?

5               DR. CAILLIET:  Yes.

6               MR. ABELSON:  I want you to quickly run  
7       through a series, not too quickly, but a series of  
8       graphs that show these various larvae and what  
9       their condition appears to be overall in recent  
10      years.

11              DR. CAILLIET:  Okay.  I've taken this  
12      from the URS report that I guess was withdrawn,  
13      but it was published in 2001, and it uses Vantuna  
14      data, and basically it shows from 1974 on to  
15      almost 2000, the relative values, both seasonally  
16      and yearly, are between years over time.

17              This would be silverside, which would  
18      include top smelt, jack smelt, grunion.  Next  
19      slide.

20              MR. ABELSON:  So they're going down, is  
21      that the point?

22              DR. CAILLIET:  That's right.  And then  
23      here's another set of data showing the larvae of  
24      Bay gobies, *lepidogobius*, in King Harbor, which  
25      is north of there -- pardon me, south of there --

1 MR. ABELSON: That's the next chart on  
2 the --

3 DR. CAILLIET: Bay goby. We can keep  
4 going because the majority of these look exactly  
5 the same.

6 MR. ABELSON: Queenfish --

7 DR. CAILLIET: This is queenfish larvae  
8 which are croakers, small schooling fish;  
9 pleuronectes is a genus of flatfish. And you can  
10 see the declines going down. White croaker,  
11 larval densities, same trend. Anchovy larval  
12 densities, again at King Harbor the same trend.

13 So I see a very clear line of evidence  
14 that coincides with some of the fish biomass data  
15 that indeed, in the Southern California Bight and  
16 in Santa Monica Bay, specifically, these adult  
17 populations appear to have been declining over the  
18 last several decades.

19 And coincident with that, and actually a  
20 cause-and-effect, probably, is that their larvae  
21 that are being produced have also been declining.

22 MR. ABELSON: So, in summary then, Dr.  
23 Cailliet, when the applicant's witness Mr.  
24 Mitchell suggests in writing or otherwise that  
25 things in terms of the fishery may be fine, the

1 condition of the fishery of the Santa Monica Bay,  
2 in your professional opinion is he correct or not?

3 DR. CAILLIET: In my professional  
4 opinion, which is based mainly on a comprehensive  
5 review of the published literature of the peer-  
6 reviewed scientific literature, Santa Monica Bay  
7 is severely ecologically degraded at this time.

8 MR. ABELSON: All right. I'd like to  
9 turn next, if we could, to Dr. Foster. And try to  
10 determine through your testimony, Dr. Foster, what  
11 the impact of this particular facility might be.

12 DIRECT EXAMINATION

13 BY MR. ABELSON:

14 Q Dr. Foster, will the proposed project,  
15 will its withdrawal of approximately 139 billion  
16 gallons of water each year cause any direct  
17 adverse biological impacts?

18 DR. FOSTER: In my mind there's  
19 absolutely no question that based on a review of  
20 the data that the withdrawal of that level, that  
21 amount of water, at the velocities in question,  
22 will cause direct adverse impacts. It will kill  
23 trillions of plankton. And amongst those plankton  
24 will be billions of fish larvae.

25 MR. ABELSON: How many plankton again?

1 DR. FOSTER: Trillions.

2 MR. ABELSON: Will these adverse  
3 entrainment impacts alone have a direct  
4 significant adverse impacts, if you only had this  
5 project and there was nothing else, would that be  
6 enough for you to conclude it was significant?

7 DR. FOSTER: That's actually been part  
8 of our difficulty in reviewing this project, and  
9 that is without reliable site-specific data it's  
10 very hard to determine if the project alone will  
11 cause significant direct impacts.

12 However, based on recent site-specific  
13 well-designed 316B studies done at other  
14 locations, the answer is likely to be yes.

15 I'll give you some examples. At Moss  
16 Landing Power Plant where there had been prior  
17 316B studies that were done that concluded no  
18 impact. Recent studies, in fact, indicated that  
19 although it varies from species to species,  
20 somewhere on the average of about 10 percent of  
21 the adult fish populations contributing to the  
22 larvae produced by the adult fish populations in  
23 the region were being killed by entrainment --

24 MR. ABELSON: At the one plant?

25 DR. FOSTER: At Moss Landing.

1 MR. ABELSON: Um-hum.

2 DR. FOSTER: At Morro Bay the figure has  
3 ranged from 12 to 17 percent, depending on how  
4 it's calculated. But for some species there it  
5 was estimated up to 40 percent of the larvae  
6 produced by source adult populations were being  
7 killed.

8 MR. ABELSON: All right, let me turn  
9 from direct impacts to the question of cumulative  
10 impacts. Will the proposed project's adverse  
11 entrainment impacts and related impingement and  
12 thermal impacts have a significant cumulative  
13 adverse impact on the marine ecology of Santa  
14 Monica Bay, and could you explain your answer?

15 DR. FOSTER: There's no question in my  
16 mind that viewed in conjunction with the  
17 entrainment of other power plants in Santa Monica  
18 Bay and given the degradation of fish populations  
19 as Dr. Cailliet described, that there will be some  
20 significant adverse cumulative impacts.

21 MR. ABELSON: Have you done any analysis  
22 of the volumes that the various power plants,  
23 including the El Segundo Plant, are withdrawing  
24 from the Bay?

25 DR. FOSTER: I've done that, and that

1 analysis is shown on this visual up here. It  
2 turns out that when the Scattergood 316B was done,  
3 they did some extensive oceanographic studies in  
4 Santa Monica Bay to try to figure out simply what  
5 percent of the water of Santa Monica Bay was being  
6 withdrawn by the Scattergood Plant.

7 And they estimated that the plant  
8 withdrew water from depths of up to 50 feet deep  
9 out to four miles offshore. And assuming that  
10 that water flows by the plant in a very slow  
11 current, they estimated that that plant alone  
12 withdrew 4.4 percent of that body of water.

13 MR. ABELSON: Was that a conservative  
14 estimate?

15 DR. FOSTER: In my mind it is, for a  
16 couple reasons. One is that, first of all, you  
17 know, if you look at the cumulative impact, if you  
18 look at El Segundo, if you added that on top of  
19 it, and then Scattergood and El Segundo combined  
20 bring it up to about 7.8 percent, using the  
21 approach in that study that I just cited.

22 And then you have Redondo which is  
23 around 600 million gallons a day, that's 5.3  
24 percent. So now you're up to around 13, over 13  
25 percent.

1           That seems to me a fairly large number.  
2       And I think it's conservative because of the fact  
3       of the matter is that this NBC research  
4       corporation study, as well as recent studies, have  
5       actually shown that the water doesn't flow by the  
6       shoreline like a river. It actually slows  
7       partially as a gyre, so the water is not having  
8       portions of it entrained away once; it happens  
9       repeatedly to some part of that water.

10           So, therefore, in terms of the amount of  
11       water removed from a particular parcel of that  
12       Santa Monica Bay is probably much higher than 13  
13       percent.

14           MR. ABELSON: So these numbers that are  
15       up here, the 4.4, the 3.4 and the 5.3, they all  
16       assume the water's just going by one time, --

17           DR. FOSTER: Correct.

18           MR. ABELSON: -- and that's how much you  
19       grabbed over the course of that time? But you're  
20       saying that, in fact, water goes around and comes  
21       back again to be grabbed yet further?

22           DR. FOSTER: Correct.

23           MR. ABELSON: And so these numbers that  
24       you're showing, 13 percent, is a conservative  
25       number?

1 DR. FOSTER: Yes.

2 MR. ABELSON: In summary, Dr. Foster, is  
3 it fair to say that based on the facts and the  
4 information that you've looked at, that you have  
5 concluded and found that this project will cause a  
6 significant adverse cumulative impact to the  
7 marine ecology of Santa Monica Bay?

8 DR. FOSTER: In my mind there's little  
9 question about that. Killing 13 percent or more  
10 of the life in the Bay that is already degraded is  
11 clearly a significant adverse cumulative impact.

12 MR. ABELSON: I'd like to turn back to  
13 Dr. Davis, and --

14 CHAIRMAN KEESE: Excuse me, can I get a  
15 question in? You switched from 13 percent of the  
16 water to killing 13 percent of the larvae?

17 DR. FOSTER: Well, I meant the larvae in  
18 that water.

19 CHAIRMAN KEESE: Is this a one-to-one  
20 equation? I mean so the larvae are equally spread  
21 throughout the water and that --

22 DR. FOSTER: Well, no, the --

23 CHAIRMAN KEESE: -- analogy holds?

24 DR. FOSTER: They're not equally spread  
25 throughout that water, but they're in that



1 water --

2 CHAIRMAN KEESE: If you take 13 percent  
3 of the water, you assume you've killed 13 percent  
4 of the larvae?

5 DR. FOSTER: That's a reasonable  
6 assumption.

7 MR. ABELSON: I'd like to go back to Dr.  
8 Davis to an issue that Chairman Keese was raising  
9 a minute ago, or perhaps it was Officer Shean,  
10 about the baseline question.

11 Dr. Davis, will the adverse impacts that  
12 have been described actually increase, get worse,  
13 as a result of this proposed project? Or is the  
14 project, in fact, maintaining the status quo ante,  
15 maintaining things as they are as CEQA strives to  
16 do?

17 DR. DAVIS: Well, even with the proposed  
18 flow cap, in my opinion the project will make the  
19 impacts of the power plant worse than is the  
20 existing condition.

21 MR. ABELSON: Okay. Would you bring up  
22 the next slide for us?

23 HEARING OFFICER SHEAN: Will you explain  
24 your answer?

25 MR. ABELSON: Yeah, no, we're --

1 DR. DAVIS: Yes, that's where we're  
2 going on that.

3 MR. ABELSON: We want to use this slide  
4 and I want to ask you to begin by providing your  
5 understanding, or at least your definition of what  
6 the existing baseline is for CEQA purposes with  
7 reference to this slide.

8 DR. DAVIS: Well, under the CEQA  
9 guidelines normally the CEQA baseline is the  
10 conditions at the date the application for  
11 certification was filed, in this case it was  
12 December 2000.

13 And this presents the monthly flows that  
14 we got from the Los Angeles Regional Water Quality  
15 Control Board for both intakes for the five years  
16 immediately preceding the filing of the AFC; or in  
17 other words, 1996 through 2000.

18 MR. ABELSON: Now, there are a lot of  
19 numbers up here, and I want to stop before you go  
20 further because I'd like to ask you a couple of  
21 questions so the Committee gets track on the  
22 numbers a little bit.

23 But let's just take the first column  
24 here under the month of January, 31 days. Based  
25 on that five years from January of 1996 up until

1 December of 2000 when the AFC was filed, what was  
2 the average amount of gallons per day in millions  
3 of gallons per day, because that's the reference  
4 point, that intake one was bringing in?

5 DR. DAVIS: In January it was  
6 approximately 246 million gallons a day -- I'm  
7 sorry, 33 million gallons a day.

8 MR. ABELSON: All right, now intake two  
9 was --

10 DR. DAVIS: Was 246.

11 MR. ABELSON: And together they were  
12 taking in?

13 DR. DAVIS: 279 million gallons per day.

14 MR. ABELSON: And that's a figure per  
15 day. If you then go ahead and adjust that into a  
16 monthly figure?

17 DR. DAVIS: Right, for the whole month,  
18 then, that would be 8 billion 649 gallons per day.

19 MR. ABELSON: And I hope for the  
20 Committee's sake that the rest of the numbers are  
21 self explanatory that way.

22 Well, based on that historic level, if  
23 you'd look down at the bottom, what would be the  
24 annual average amount of gallons using that  
25 reference point?

1 DR. DAVIS: A little bit under 127  
2 billion gallons.

3 MR. ABELSON: All right, so is this  
4 table, which shows the five years leading up to  
5 the filing of the AFC, in your opinion is this the  
6 proper or the correct baseline for CEQA purposes  
7 for this project?

8 DR. DAVIS: Well, actually, no, it  
9 really isn't the proper baseline for this project  
10 because normal circumstances changed in January of  
11 this year.

12 MR. ABELSON: Stop right there. Could  
13 you bring up the next slide?

14 DR. DAVIS: In January their permit to  
15 operate units 1 and 2 from the South Coast Air  
16 Quality Management District became invalid. So  
17 the existing condition now, because there's no  
18 longer any units to cool, as far as withdrawing  
19 cooling water from intake one, so the proper  
20 baseline for intake one would be zero.

21 MR. ABELSON: So, again, being very  
22 clear about this, something happened as of January  
23 1 this year, namely that the South Coast Air  
24 Quality Management District permit to run units 1  
25 and 2 ceased to be operative; and therefore,

1 cooling water is no longer being withdrawn because  
2 there's nothing to legally cool, is that correct?

3 DR. DAVIS: That's correct.

4 MR. ABELSON: All right. So how does  
5 that change, then, your view of what the proper  
6 baseline is from staff's perspective of the proper  
7 baseline?

8 DR. DAVIS: Well, based on what now  
9 basically is the existing or the normal condition,  
10 the total average annual flow would be about 101.5  
11 billion gallons per year.

12 MR. ABELSON: And the applicant, under  
13 their system, is proposing 139 billion, is that  
14 correct?

15 DR. DAVIS: That's correct.

16 MR. ABELSON: So depending on how you  
17 view the baseline would it be correct to say that  
18 it appears to you that they are increasing above  
19 current baseline?

20 DR. DAVIS: Yes.

21 MR. ABELSON: All right. The applicant  
22 has explained this morning, Dr. Davis, about the  
23 fact that they're using a different set of years.  
24 That they're using, instead of 1996, '97, '98, '99  
25 and 2000 when the AFC was filed, instead they're

1 using the years '98, '99, 2000, 2001 and 2002. Do  
2 you think that this is a proper baseline to use  
3 for this project?

4 DR. DAVIS: Well, no, because during  
5 that period we had the energy crisis which was a  
6 very abnormal period in terms of power use. We  
7 had all these rolling blackouts.

8 I've lived in southern California almost  
9 my entire life, which is quite a long time, and  
10 that's the only time that I can remember a period  
11 like that. So I would say that those years  
12 include some atypical years.

13 MR. ABELSON: Well, when you put zero  
14 into your chart, is that, in your judgment,  
15 atypical? Or is that something that's permanent?

16 DR. DAVIS: Well, now it's permanent.  
17 They can't operate those units anymore.

18 MR. ABELSON: All right. With that I'd  
19 like to turn back to Dr. Cailliet and ask that the  
20 next screen be brought up, if we could.

21 Dr. Cailliet, the applicant has made a  
22 couple proposals in this part of their project in  
23 the last month or two. And one of them is to  
24 impose what they call an annual cap of 139 million  
25 gallons of water per year.

1 I'm going to get to the monthly cap in a  
2 moment, but just for reference, with regard to the  
3 annual cap, would this, alone, preserve existing  
4 conditions, status quo ante, in your judgment?

5 DR. CAILLIET: It doesn't seem to me  
6 that it would because it would allow the  
7 applicant, with this total annual volume cap, to  
8 increase volumes at certain times of the year,  
9 maybe seasons, that either have historically been  
10 limited by needs, or by decisions.

11 And the thing that worries me the most  
12 is that it might increase the harm to the marine  
13 organisms that are in the plankton, especially  
14 during those seasons when spawning occurs. And  
15 I'll show you in a minute or so spawning doesn't  
16 occur just in the springtime of February, March,  
17 April, but all year.

18 MR. ABELSON: All right. So, if you put  
19 in place an annual cap, what that does is in  
20 effect allow you, subject to your NPDES limits, to  
21 use that water anytime you want to if that's all  
22 the cap there is, and your concern is they might  
23 use it more in times it could be harmful?

24 DR. CAILLIET: They certainly wouldn't  
25 be -- they wouldn't be stopped from it, no, they

1       could if they wished to.

2               MR. ABELSON: All right, well, let's  
3       move on, then, to the issue of the three-month cap  
4       and some points that you're suggesting about  
5       seasonality concerns.

6               The applicant has proposed a three-month  
7       cap for the months of February, March and April.  
8       Why doesn't that three-month cap address  
9       adequately your seasonality concerns?

10              DR. CAILLIET: Well, from the studies  
11       we've done in the power plants that Dr. Foster  
12       mentioned, and in the ones I've read about in  
13       southern California and Santa Monica Bay,  
14       specifically, the papers that have been published  
15       in the peer review literature indicate several  
16       times through the papers that there aren't just  
17       fishes that spawn in February, March, April or  
18       have their larvae in the water column at that  
19       time.

20              Indeed, there are three groups. Those  
21       that spawn in what we call probably winter and  
22       spring; those that spawn in the fall, summer and  
23       fall; and those actually that spawn all year  
24       round. This is a very simplified list, but it  
25       basically shows that things like silversides, top



1 smelts, jack smelts, grunion and croakers, the  
2 white croaker, are actually spring spawners, the  
3 time which the caps were proposed for.

4 Summer spawners include the queenfish,  
5 which is another croaker, and kelp bass, among  
6 other species. The list is longer than that. And  
7 there are quite a few year-round spawners,  
8 primarily anchovies and sardines and gobies are  
9 listed on this list. And that doesn't mean that  
10 they all spawn all year round, but there is a  
11 tendency for them to have their eggs and larvae in  
12 the water column at least three different seasons  
13 of the year; some of them all year long.

14 MR. ABELSON: These species that you've  
15 used as examples, the silverside, white croaker,  
16 queenfish, kelp bass, anchovy and gobies, are  
17 these all species that we have evidence do  
18 actually tend to produce larvae around the  
19 location of the intake?

20 DR. CAILLIET: Yes, they're all around  
21 this.

22 MR. ABELSON: Now, this morning, you  
23 perhaps saw for the first time a graph by the  
24 applicant showing that the total larvae, if I  
25 remember the caption on the graph correctly, the

1 total larvae was sort of skewed towards the  
2 spring; had a big peak in the early months, and  
3 then it sort of seemed to drop off to almost  
4 nothing for the rest of the year.

5 Do you have an opinion as to whether  
6 that graph accurately conveys the seasonality  
7 issues that are going on in the region we're  
8 concerned about?

9 DR. CAILLIET: No. I think it's a gross  
10 over-simplification of what happens. I wouldn't  
11 deny that the majority of eggs and larvae, number-  
12 wise, might be in the water column in the  
13 springtime. That is the best time when upwelling  
14 occurs and the nutrients are richest for them to  
15 have the highest survival.

16 But as I indicated, the papers I've read  
17 all for the Southern California Bight, indicate  
18 that there are spawners that occur all year long.

19 MR. ABELSON: I know we had a graph on  
20 this earlier --

21 DR. CAILLIET: Let me -- can I finish?

22 MR. ABELSON: Oh, yeah, --

23 DR. CAILLIET: I wasn't quite done.

24 MR. ABELSON: I'm sorry.

25 DR. CAILLIET: The graph that Mr.

1 Mitchell put up there was the number of eggs on  
2 the left side; and on the right side, the number  
3 of larvae per volume of water. And indeed, he  
4 showed a big peak.

5 But the trouble with that, and I think  
6 it's misleading because of that, is that he lumped  
7 all the CalCofi data for something, I believe he  
8 said 50 years, and it also would include all of  
9 the stations in the California Cooperative Oceanic  
10 Fisheries grid.

11 At the lunch break I went and looked at  
12 a paper by Val Loeb, Paul Smith and Jeff Mozier  
13 from the LaJolla either Scripps Institution of  
14 Oceanography, the National Marine Fisheries  
15 Service lab, which runs the CalCofi program, and  
16 indeed, if you take the whole California current,  
17 or even just the Southern California Bight portion  
18 of it, about 65 percent of those eggs and larvae  
19 would be in --, which would be the northern end,  
20 which can occur, the eggs and larvae of which can  
21 occur near shore, hake and jack mackerel.

22 Twelve or 13 percent are actually  
23 mesopelagic or deep water fishes whose larvae are  
24 there. And only 7 percent of that peak, or of  
25 those totals, are from continental shelf fishes.

1           So I think that that peak is an over-  
2       simplification of what happens. You have to look  
3       at it either species-by-species, or species group-  
4       by-species group.

5           MR. ABELSON: Not by total fish?

6           DR. CAILLIET: Exactly. And then the  
7       next slide I'll show --

8           MR. ABELSON: All right. Todd, could  
9       you queue up that next slide then.

10          DR. CAILLIET: This is a slide just  
11       showing summer spawners. And as --

12          MR. ABELSON: Excuse me, this one is not  
13       in the packet, Commissioners, and we apologize.  
14       We hadn't anticipated using this particular slide.  
15       But in light of the presentation this morning of  
16       something we hadn't seen, we felt we needed to  
17       insert it. So, we're sorry.

18          DR. CAILLIET: We do have copies of it,  
19       though.

20          PRESIDING MEMBER PERNELL: Just one  
21       quick question. Where does this slide come from?

22          DR. CAILLIET: I was just going to say.  
23       This was one of those papers by H. J. Walker, Bill  
24       Watson and Burnett in 1987, looking at seasonal  
25       distribution and abundance of species of fish,

1       their larvae; the larvae of species of fish. This  
2       one happens to come from the San Onofre Power  
3       Plant study. And this shows nine species of  
4       fishes. I don't think the names make that much  
5       difference to you, but if you look at where their  
6       peaks are, their peak spawning is in June, July,  
7       August, every one of those three years that they  
8       did their study.

9               So it gives you an idea that some of the  
10       nearshore spawners do that. The neat thing about  
11       this paper was that H. Jay Walker, who's the  
12       senior author, clustered the samples. And when  
13       they clustered out by species composition there  
14       was a winter/spring assemblage and there was a  
15       summer/fall assemblage that indicated that they  
16       cluster because of their spawning periods. If  
17       that makes sense.

18              MR. SMITH: Dr. Cailliet, --

19              DR. CAILLIET: Yes.

20              MR. SMITH: -- then are you suggesting  
21       that regardless of the species, I think you used  
22       the term shallow spawners?

23              DR. CAILLIET: Yes, nearshore.

24              MR. SMITH: Nearshore spawners,  
25       regardless of the species they would follow these

1 patterns?

2 DR. CAILLIET: I'm saying that those  
3 nine species would be primarily spawning in  
4 summer; and the other slide, which you don't have  
5 up there, would have been in the spring, the  
6 winter/spring --

7 MR. SMITH: I guess I -- can you  
8 correlate these species, then, to those found in  
9 the El Segundo --

10 DR. CAILLIET: Yes, quite a few of those  
11 are the same; I'm having trouble reading it right  
12 now.

13 MR. SMITH: Yeah, there is --

14 (Parties speaking simultaneously.)

15 DR. CAILLIET: A couple of them are  
16 mesopelagic, the barracuda is on there, the  
17 blacksmith, sargo, kelp bass or at least basses in  
18 general, and blemies. So all those groups, I'd  
19 say at least six or seven of them would be very  
20 likely to be found at the intake.

21 MR. SMITH: Okay.

22 MR. ABELSON: So, in short, Dr.  
23 Cailliet, could you describe for the Committee,  
24 please, the type of seasonal cap, if any, that in  
25 your professional opinion would preserve the

1 existing conditions, the status quo ante, and  
2 would not increase the adverse impacts from this  
3 proposed project?

4 DR. CAILLIET: No, I really can't. I  
5 can't find a compelling argument to have seasonal  
6 caps. I think basically I fish larvae, in  
7 general, of various species are going to be  
8 vulnerable all year round. And so -- that's my  
9 answer.

10 MR. ABELSON: Given that they're  
11 vulnerable year round, would putting a cap on then  
12 every month of the year that mimics existing  
13 conditions, in fact, make sure the circumstance  
14 didn't get any worse? Every month?

15 DR. CAILLIET: So you're asking the  
16 status quo ante question?

17 MR. ABELSON: Yeah.

18 DR. CAILLIET: No, I don't believe so.

19 MR. ABELSON: Okay.

20 DR. CAILLIET: I could point out,  
21 though, that one of Dr. Davis' slides, if you  
22 looked at the actual water intake over either of  
23 those two sets of years, it was lower in the  
24 spring and it increased during the summer and  
25 fall, and then went down again in the winter.

1           So, that was mimicking what the caps  
2           that were proposed seasonally actually were.

3           MR. ABELSON:  So, what I'm trying to say  
4           is this, if a cap were set at whatever the  
5           existing levels are every month of the year, every  
6           month not just the three months, would that, in  
7           effect, maintain the existing conditions?

8           DR. CAILLIET:  I don't think so.

9           MR. ABELSON:  Dr. Raimondi, if I could  
10          turn to you, then.  The applicant, Dr. Raimondi,  
11          has cited a large number of written documents to  
12          support its claim that there are no significant  
13          impacts from the proposed project of any kind.

14          My first question to you is have you and  
15          your colleagues, collectively as a team, reviewed  
16          these documents?  And in your professional  
17          judgment are they relevant, adequate and reliable  
18          for answering the issues, the biological resource  
19          issues that are presented in this case?

20          DR. RAIMONDI:  I'll address specifically  
21          the entrainment issues, since that seems to be the  
22          one that we're focusing on.  And we have reviewed  
23          all these documents.  And in my professional  
24          opinion there hasn't been a study that's been done  
25          that can answer that question.



1           So my professional opinion is that the  
2       studies that have been put forward are either  
3       inadequate or unreliable or actually they're  
4       wholly deficient in being able to answer that  
5       question.

6           MR. ABELSON: Could you, in order to  
7       reliably determine the nature and scope -- can we  
8       bring up the next slide -- in order to reliably  
9       determine the nature and scope of entrainment  
10      impacts at El Segundo, could you describe the sort  
11      of features that would be necessary to be done in  
12      your opinion?

13          DR. RAIMONDI: Yeah, I think that the  
14      bottomline is really you need a current properly  
15      designed study. And these are the features that I  
16      think are attributes of such a study.

17          The first is you need proper sampling  
18      locations. And, again, we're talking about  
19      entrainment studies at this point. For an  
20      entrainment study you need to be able to sample  
21      both the intake adequately; and you also need to  
22      be able to sample the source water body  
23      adequately. Neither of which has been done for El  
24      Segundo.

25          Now, I'll just give you an example of

1        why it might not be satisfactory to use  
2        Scattergood or Redondo Beach. I've worked for the  
3        last ten years at the San Onofre Nuclear  
4        Generating Station on impingement and entrainment  
5        issues there. They have two intakes, as well.  
6        Intake two and intake three. Intake one has been  
7        shut down.

8                Intake two and intake three are less far  
9        apart than are Scattergood and El Segundo. And  
10       entrainment and the impingement numbers between  
11       those two are completely different.

12               Intake two routinely takes in twice as  
13       many larvae and fish as does intake three. And  
14       the composition among these two intakes that are  
15       separated by less than a kilometer, far less than  
16       a kilometer, are wholly different.

17               And so the location for the intake is  
18       something that's really critical. And the  
19       location for the source water body sampling is  
20       also very critical.

21               The second issue is timely data. By  
22       that what we mean is we really think that to do a  
23       proper entrainment study we need to collect data  
24       that is current. Things have changed  
25       dramatically, as has been pointed out repeatedly

1 in the earlier testimony, over the last 20 years.

2 The composition of fish that were  
3 present 20 years ago is nothing like it is today.  
4 And so using data that had been collected in  
5 different places and different times is just  
6 inadequate for any sort of appropriate study.

7 Proper collection methods is also very  
8 critical. There are gear issues. And in the  
9 studies that I've been associated with, part with  
10 some of the people here, one of the very first  
11 things that has been done is to calibrate the gear  
12 and to make sure whatever sampling gear that is  
13 being used is adequate for sampling and has no  
14 sort of biases associated with them. Combining  
15 different gear types is really very problematic,  
16 and we've never been able to do it satisfactorily  
17 in the past.

18 So when you look at studies that have  
19 got this type of gear, and this study this type of  
20 gear, another study, and trying to relate the two,  
21 or relate any of these studies it's very  
22 problematic.

23 Another issue that we found repeatedly  
24 is problematic in other studies, more recent  
25 studies, is the depth profile from which you're

1 collecting these entrainment surveys. It's very  
2 important to standardize this and to be able to  
3 cut across, or to sample across all depth profiles  
4 in the source water body near the intake  
5 structure, so that you can completely and  
6 adequately characterize the assemblies that you're  
7 trying to characterize.

8 Finally, I think a really important  
9 thing is that we found out first, probably in the  
10 Moss Landing Power Plant determination, was that  
11 when we sampled for the first time at night we had  
12 a completely different situation than when our  
13 samples had indicated for the daytime. And we  
14 completely revised our assessment of entrainment  
15 impacts based upon sampling at night. And that's  
16 because fish have behavior, as do lots of things.

17 And so if you sample only in the daytime  
18 you get a very different picture of what goes on  
19 in terms of the entrainment impacts than if you  
20 sampled just in the daytime.

21 Next part, proper species  
22 identification. Again, I'm going to use some case  
23 examples. At Diablo Canyon, at Moss Landing, at  
24 Morro Bay we spent a huge amount of time, a lot of  
25 money and a considerable amount of effort trying

1 to get down to a low species identification, the  
2 lowest level of resolution that we could possibly  
3 do.

4 The reason for this is that by lumping  
5 species, which has been done repeatedly in the  
6 past, you almost always de-emphasize the rare  
7 species, and those are the species that you really  
8 care a lot about, are the rare species.

9 And so when we actually went to the  
10 effort to either use genetic techniques, or to  
11 train the sorters to be able to identify species  
12 to the species level, rather than to some sort of  
13 functional group level, or to some sort of  
14 morphological level, we came up with very  
15 different conclusions about the nature of the  
16 impact.

17 Finally, the proper impact assessment  
18 techniques. Up to about five years ago on the  
19 west coast there were two standards that were  
20 used. They were called the adult equivalent loss  
21 model and the fecundity hindcast model. Both of  
22 them are pretty straightforward.

23 What they do is they try to translate  
24 larval fish into adult fish.

25 MR. ABELSON: About how many of those

1 would grow up essentially?

2 DR. RAIMONDI: Yeah. And so what you're  
3 trying to do is to estimate the loss to what was  
4 called the standing stock. You can just imagine  
5 it being the loss to the adult population that  
6 would be caused by the entrainment of these  
7 larvae.

8 And to do this it's a very  
9 straightforward mathematical calculation. But the  
10 details are really problematic, and that is  
11 because you have to know a considerable amount  
12 about the survivorship of all these little larval  
13 forms. We know so little about this that we could  
14 only do it for a very few species. So the vast  
15 majority of species you couldn't even make this  
16 calculation for.

17 I'm not sure that this is resolvable.  
18 And so in the last five years on the west coast,  
19 and earlier on the east coast, there has been a  
20 movement toward a methodology that's called the  
21 empirical transport model that meets none of those  
22 assumptions. And simply relates the loss larvae  
23 to the proportion of larvae that are lost in the  
24 greater system. And uses that as the metric for  
25 the loss.

1           And so we don't have to make these  
2       assumptions about how many will grow up when we  
3       can't even follow these things in the ocean. All  
4       we do is we make an estimate of the proportion of  
5       larvae that are lost due to the operation of the  
6       power plant.

7           MR. ABELSON: Let me ask you a question  
8       about that ETM in terms of where it stands in the  
9       professional community these days. And I  
10      understand that this is an area that is an area of  
11      proposed particular interest and particular  
12      expertise to you, personally. Am I correct about  
13      that?

14          DR. RAIMONDI: That's correct.

15          MR. ABELSON: All right. That ETM model  
16      you indicated it was only developed and began to  
17      be deployed widely on the west coast about five  
18      years ago.

19          DR. RAIMONDI: Yes.

20          MR. ABELSON: Is it fair to characterize  
21      that as pretty much the gold standard today for  
22      the impact methodology being used out here?

23          DR. RAIMONDI: What I can tell you is  
24      that for all cases that have come up in the last  
25      five years, and these would be Diablo, Moss

1       Landing, Potrero, Morro Bay, that it has been the  
2       method of choice. It is considered to be across  
3       the country the most rigorous and assumption-free  
4       model that's present.

5               (Alarm sounding.)

6               (Parties speaking simultaneously.)

7               MR. ABELSON: All right, let me ask you  
8       this. You'd indicated that there are a number of  
9       key parameters from location to time to collection  
10      methods and species identification, and finally to  
11      the model you put all the data into, that can  
12      actually very profoundly affect the outcome  
13      whether you find there's a significant impact or  
14      not.

15              Have these modern methods that you've  
16      been describing, have they, to your knowledge,  
17      changed the results in any recent power plant  
18      cases that you're familiar with?

19              DR. RAIMONDI: Absolutely. I mean I  
20      think that's one of the reasons that it is the  
21      model of choice, is because when you compare the  
22      results using the empirical transport methodology  
23      that has been widely used in the last five years,  
24      to earlier results, or even current results using  
25      AE, adult-equivalent losses, or fecundity



1 hindcast, you come to completely different  
2 conclusions about impact.

3 As an example, at Moss Landing there was  
4 a 316B that was done in the mid '70s, mid to late  
5 '70s, and came up with a conclusion of no  
6 significant impact. We repeated that study and  
7 the 316B was submitted a couple years ago. We did  
8 all three methods. We did empirical transport  
9 model; we did, for consistency, the adult  
10 equivalent model and also the fecundity hindcast.

11 We came up with the very same  
12 conclusions that I just stated, which is the adult  
13 equivalent model, the fecundity hindcast couldn't  
14 be used for most of the species. We simply just  
15 did not have the right information.

16 When we looked at the empirical  
17 transport model we came up with the conclusion  
18 that about 13 percent of the source water body was  
19 compromised by the use of the power plant.

20 Now, let me tell you one other thing.  
21 Somebody up there asked a question earlier about  
22 whether there was a direct association between  
23 entrainment in terms of the volume of the water  
24 and the larvae that were present in the water.

25 There is, but in all the cases that I've

1       been associated with, at Diablo Canyon and Moss  
2       Landing, at Morro Bay, the impact to the fish  
3       abundance, or the fish plankton has always been  
4       greater, greater than and sometimes many times  
5       greater than the volumetric approximation.

6               So, as an example, if you estimated that  
7       10 percent of the water of the source body moved  
8       through the plant, we would have estimates of the  
9       lost larval forms as being much greater than that  
10      of increases. And so --

11             MR. ABELSON: Is there any logical  
12      explanation for that, like the attractive nature  
13      of the intakes?

14             DR. RAIMONDI: Yeah, we've wondered  
15      about that because it doesn't seem to make  
16      intuitive sense. You'd think that these, they're  
17      well mixed, they should just act as passive  
18      particles in the water. It should be pretty much,  
19      you know, close approximation.

20             But then we always forget, well, we  
21      don't always forget, but we don't take into  
22      account until the very end the behavior of these  
23      larval forms. They're swimming, they have all  
24      sorts of behavior. They move in close to shore;  
25      they're attracted to structure. And there are

1 many reasons why they might be, you know, taken in  
2 greater numbers than you might expect, based upon  
3 the volumetric approximation.

4 And it might have just been a site-  
5 specific effect, except that we've seen it in  
6 three plants in a row. And so our guess is that  
7 it's not just a site-specific effect. And that  
8 the volumetric approximation may under-estimate  
9 the true impact resulting from larval entrainment.

10 MR. ABELSON: Do you know, Dr. Raimondi,  
11 whether or not EPA has done anything to modernize,  
12 if you will, its own entrainment-related 316B  
13 regulations in light of these various scientific  
14 advances that you're pointing out?

15 DR. RAIMONDI: Well, in light of the  
16 advances and also lawsuits, but there have been  
17 two sort of steps that have been taken. One is --  
18 and it's been talked about already today -- in  
19 terms of new power plants, the regulations have  
20 been very strengthened.

21 And in fact, I think it's very unlikely  
22 that a coastal power plant could be built with  
23 once-through cooling at this point, a new one.

24 In terms of existing power plants, the  
25 proposals have been already discussed. But the

1 bottom line is that the regulations will be  
2 significantly stiffened if any of the proposals go  
3 through as planned.

4 MR. ABELSON: All right. I'd like to  
5 have the next slide up, if I could, please.

6 Given this background that you've  
7 provided us about the important features of a good  
8 study, the important changes that have occurred in  
9 the science, and to some degree what we've  
10 actually found with that new science in other  
11 cases, and what EPA is now doing to some degree as  
12 a result of that, can you provide a summary of  
13 your view and the team's view of the deficiencies  
14 in the many documents that the applicant has  
15 relied on to support its case for no significant  
16 impacts?

17 DR. RAIMONDI: Yeah. Could you just go  
18 back one slide for a second. I just want to go  
19 back. So these are the things that we look for in  
20 all these cases. We look for the location, the  
21 timeliness of the data, the collection methods,  
22 whether there was lumping or there's proper  
23 species identification. And also what the model  
24 was that was going to be used in trying to  
25 estimate what the entrainment impacts would be.

1           Now you can go on. And we went through  
2       this. And one of the big difficulties was is  
3       there really is no study that has been done on El  
4       Segundo. And so what we were left with was trying  
5       to assemble bits and pieces of these previous  
6       316Bs and some of the relationships that the  
7       applicant put together to see whether we could  
8       cobble something together that would at least be  
9       informative.

10           MR. ABELSON: So are the -- you're going  
11       to talk about, are these ones that are up on this  
12       current graph?

13           DR. RAIMONDI: Yes.

14           MR. ABELSON: Are these entrainment  
15       studies, per se?

16           DR. RAIMONDI: Well, the 316B covers all  
17       the things having to do with receiving the intake  
18       waters, and so the one that was used initially was  
19       the 316B from Ormond Beach. But as we've stated  
20       up here, it was done a long time ago; the place  
21       was different; and the methods were very  
22       different. And also the model that was used that  
23       under-plied the assessment is completely outdated  
24       in my opinion, in my professional opinion.

25           MR. ABELSON: What about Scattergood?

1 DR. RAIMONDI: Same thing. Both of  
2 these are problematic because of the timing, the  
3 place and the methodology, particularly the  
4 methodology. The King Harbor proxy study really  
5 has nothing to do with estimating entrainment  
6 impacts. Go on.

7 The Hyperion, it's the wrong purpose,  
8 the depth, the wrong fishes. And let me just say  
9 one thing before I go into these other things.  
10 The key feature of a well designed impact study,  
11 entrainment impact study, is that you go into it  
12 with the question in mind rather than you come  
13 after it with a whole bunch of studies after the  
14 question has already been set forth.

15 So the problem, in my opinion, this is  
16 my professional opinion, the problem with all  
17 these is that they're trying to cobble together an  
18 answer to a question where the study hasn't been  
19 designed to address that particular question.  
20 That's one of the features of these other cases  
21 that we've been talking about, is that in those  
22 cases you went into it with a question in mind,  
23 and you designed it from the ground up, rather  
24 than having a whole bunch of stuff that you try to  
25 fit to a particular question.

1           And that's one of the reasons why the  
2 sport studies, they don't work for this. The  
3 sport fishing studies, they don't work for it, and  
4 neither does the -- study work for this. You  
5 can't put them together and make a whole and  
6 rigorous study, in my opinion.

7           MR. ABELSON: All right, so if you could  
8 bring up the next slide. I'd like to ask you then  
9 if it's fair to say, Dr. Raimondi, that in your  
10 professional judgment, while the applicant's  
11 documents may weigh a lot and take up a lot of  
12 space, they are collectively, in your professional  
13 opinion, irrelevant, inadequate and/or unreliable  
14 to prove that no significant impacts will result  
15 from the proposed project?

16          DR. RAIMONDI: Yeah, and I wouldn't even  
17 use zero as the estimate. I think that it's worse  
18 than nothing at all. Because at least with  
19 nothing at all you just say, well, we don't know.  
20 With these things you think that you might know  
21 something, and it might just mislead you.

22          And so I think that putting together  
23 something like this, in many cases, leads you to  
24 the wrong conclusion, which is worse than no study  
25 at all.

1           MR. ABELSON: Do you know, Dr. Raimondi,  
2           if that conclusion that you've just stated is  
3           shared by the entire CEC Staff biology team that  
4           we've introduced, the Coastal Commission, National  
5           Marine Fisheries Service, the California  
6           Department of Fish and Game and at least some of  
7           the other intervenors in this case, as well?

8           DR. RAIMONDI: I know that it's shared  
9           by the CEC Staff that's been assembled. And I  
10          know that representatives of the Coastal  
11          Commission, Fish and Game and NMFS have also  
12          agreed with this assessment. There may be other  
13          people that I haven't heard from that don't agree  
14          with that. But from the people we have heard from  
15          from those agencies, yes.

16          MR. ABELSON: Very good. I want to move  
17          on to a different phase of our testimony, Mr.  
18          Shean. But before I do -- and it may be a  
19          reasonable time, depending on the view of the  
20          Committee, to take a short break or not -- I'd  
21          like to ask Mr. Cailliet, he and I chatted briefly  
22          during the previous testimony because there was a  
23          question I had asked him that I felt he may have  
24          misunderstood. In checking with him he did  
25          misunderstand it, so I'd like to ask him again so



1       that we don't mislead the Committee about what our  
2       position is, as staff.

3               He had been talking about the fact that  
4       doing a seasonal cap for only three months of the  
5       year would not be a way to protect or preserve the  
6       existing conditions because it would allow you to  
7       take water at other times of the year. And it  
8       turns out that fish spawn at those other times of  
9       the year, the summer, year-round

10              So the question, Dr. Cailliet, I was  
11       asking was if instead of a three-month cap, a cap  
12       was imposed for each month of the year, January  
13       through December, at the existing baseline,  
14       whatever that might be, would that at least make  
15       sure that the condition wasn't getting any worse?

16              DR. CAILLIET: Yes. And I did not  
17       understand it correctly when you first asked me  
18       that question. You asked it to me twice, and I  
19       was kind of caught offguard.

20              I would proposed to prevent increased  
21       adverse effects that you would have to impose a  
22       cap every month of the year. And each and every  
23       month, as per the recent statement.

24              I think the reason to do that -- or the  
25       actual levels at which the cap would be would

1 really depend on knowing at that site over a  
2 representative year what larvae might be available  
3 there. But, yes, I would say a monthly cap would  
4 be a much preferred window.

5 MR. ABELSON: For every month of the  
6 year?

7 DR. CAILLIET: Yes.

8 MR. ABELSON: Now, we're --

9 CHAIRMAN KEESE: Excuse me, counsel.  
10 That's accepting your base?

11 MR. ABELSON: Yes, yes, --

12 CHAIRMAN KEESE: If we accept --

13 MR. ABELSON: -- that's -- right.

14 CHAIRMAN KEESE: -- one of your bases.  
15 You gave us --

16 MR. ABELSON: Right.

17 CHAIRMAN KEESE: -- you gave us two.

18 MR. ABELSON: Yeah, actually our  
19 recommended --

20 PRESIDING MEMBER PERNELL: One of them  
21 was zero.

22 MR. ABELSON: Right, our recommended  
23 base, the normal base from our view would be the  
24 historic one. But because of the changed  
25 circumstances that have occurred with this permit,

1 we believe the proper base is a zero for the one  
2 unit --

3 CHAIRMAN KEESE: And the applicant --  
4 that the appropriate base, because of the change  
5 in the market is a different one?

6 MR. ABELSON: Something else, yes.

7 CHAIRMAN KEESE: Okay, so --

8 MR. ABELSON: But whatever the proper  
9 base is, you would then impose a cap every --

10 CHAIRMAN KEESE: A monthly cap?

11 MR. ABELSON: Yes. That's correct.

12 HEARING OFFICER SHEAN: And is that  
13 irrespective of electricity needs for the State of  
14 California?

15 MR. ABELSON: That would be to insure  
16 that the requirements of the California  
17 Environmental Quality Act are met.

18 HEARING OFFICER SHEAN: Okay, you didn't  
19 answer my question. So I'll ask it of a witness.

20 Dr. Cailliet, if you can, would you  
21 answer that?

22 DR. CAILLIET: Can you please repeat the  
23 question?

24 HEARING OFFICER SHEAN: Would the  
25 monthly caps that you propose be independent of

1 any electrical need of the State of California?

2 So, if you had a monthly cap --

3 DR. CAILLIET: I can't --

4 HEARING OFFICER SHEAN: -- during the  
5 summer --

6 DR. CAILLIET: I frankly can't answer  
7 that question from my perspective as a biologist.  
8 I think that's a socioeconomic question, or at  
9 least something different than ichthyology. Maybe  
10 someone else on the panel would be happy to do  
11 that, but I wouldn't put my neck out on that.

12 HEARING OFFICER SHEAN: All right.

13 MR. ABELSON: Where we want to go next,  
14 Commissioners, is this. And this raises the  
15 question that I know Mr. McKinsey is concerned  
16 about, so I'll be forthcoming about what it is  
17 that we want to do.

18 We want to switch the panel now from our  
19 biologists to folks who have been working on other  
20 aspects of this issue, the question of whether or  
21 not the proposals of the applicant enhance and  
22 restore, whether or not there are alternatives  
23 that would do that, and do that feasibly.

24 The intention that I have for Mr. Luster  
25 is, first of all, as I understood it from Mr.

1 Shean, this was a team or sides thing. And all  
2 Mr. Luster is going to be offered for is not as an  
3 opinion witness at all, but simply to report to  
4 the Committee what the status of things are with  
5 the Coastal Commission as a matter of fact.

6 It's a very straightforward  
7 presentation, and then we would be going on to our  
8 experts on other topics.

9 HEARING OFFICER SHEAN: Okay. Does that  
10 deviate significantly in any way from the letters  
11 that were produced by Mr. Luster?

12 MR. ABELSON: No.

13 HEARING OFFICER SHEAN: Okay.

14 MR. MCKINSEY: I'd like to clarify that  
15 this isn't a question-and-answer, but this is  
16 simply a comment by a state agency. And it  
17 doesn't involve any questioning by either side at  
18 this point.

19 MR. ABELSON: Well, simply to establish  
20 the basic information that we want to get into the  
21 record and get a focus on for the transition. We  
22 need to ask some really basic, but they are  
23 factual, questions, John. They're directly  
24 related to the Coastal Commission's letters.

25 MR. MCKINSEY: The problem I have with

1       this is twofold. One, Mr. Luster hasn't been  
2       offered as a witness to this point. I don't have  
3       a r, sum, or a CV for him. I'm not necessarily  
4       convinced that he's going to be the proper  
5       authority to testify on anything other than what  
6       he said in his letter. And his letter is self-  
7       authenticating. And so it could either be read  
8       aloud or it could be put in the record.

9               But I don't think that this would be the  
10       appropriate time to have him presented as a  
11       witness by the staff, thus preventing us from  
12       asking him questions on the same topic.

13              And at this point I'm not prepared to  
14       know what topics he was going to talk about, so i  
15       would not be able to cross-examine him on those  
16       topics adequately.

17              MR. ABELSON: Let me suggest this, that  
18       I believe when all is said and done, this is a  
19       tempest in a teapot. And I'm perfectly prepared  
20       to stipulate to two things.

21              One, that Mr. Luster gets on and there's  
22       some problem afterwards with what he said, a  
23       motion to strike would be entirely appropriate.  
24       We could argue about whether it should be granted  
25       or not.

1           Number two, I have no problem with Mr.  
2       McKinsey examining Mr. Luster. That's not the  
3       reason that I'm putting him on. And he's more  
4       than welcome to examine him if he wishes to, or  
5       not, as he chooses to.

6           HEARING OFFICER SHEAN: Well, I think we  
7       should show the appropriate respect to our sister  
8       agency and allow Mr. Luster to at least make the  
9       presentation with respect to his two letters. And  
10      whether we get beyond that or not, we will find  
11      out.

12          MR. ABELSON: Thank you very much. So,  
13      at this time we'd ask Mr. Luster, in order to save  
14      time because he's going to be followed by Mr.  
15      Schoonmaker, Mr. Sapudar and Mr. York, if my  
16      biologists would be kind enough to let these folks  
17      come up to the table, I'd appreciate it.

18               (Pause.)

19          MR. ABELSON: Consistent with the  
20      approach that we've used earlier, I'd simply ask  
21      Mr. Luster if following really basic statements  
22      about his r,sum, are correct.

23                       EXAMINATION

24      BY MR. ABELSON:

25           Q     Is it true that you have a masters in

1 research geography from Oregon State?

2 MR. LUSTER: That's correct.

3 MR. McKINSEY: Objection, I don't have a  
4 r, sum, for Mr. Luster, and I don't believe it's in  
5 the record.

6 MR. ABELSON: Well, we're happy to put  
7 it into the record. I'm simply trying to  
8 establish his relevance to the proceeding. He's  
9 not offering expert testimony and --

10 HEARING OFFICER SHEAN: Well, if he's  
11 not offering an expert testimony we don't really  
12 need it.

13 MR. ABELSON: Yeah. The other two  
14 questions that I have is do you have any work  
15 experience in water quality and Coastal Act  
16 regulation?

17 MR. LUSTER: Yes, my professional  
18 experience is about 15 years in Coastal Act and  
19 coastal zone and water quality issues.

20 MR. ABELSON: And are you currently  
21 employed by the California Coastal Commission?

22 MR. LUSTER: Yes, I am.

23 MR. ABELSON: With that foundation,  
24 basically, in terms of his background, Mr. Luster,  
25 turning to the issue -- and could we bring up the



1 next slide, please -- turning to the issue of  
2 whether the proposed project is consistent with  
3 and will conform to the requirements of the  
4 California Coastal Act, to your knowledge, to your  
5 personal knowledge, not opinion, has the  
6 California Coastal Commission determined that this  
7 project is, in fact, located in the coastal zone?

8 MR. LUSTER: That's correct.

9 MR. ABELSON: All right.

10 MR. LUSTER: Therefore, subject to the  
11 applicable provisions of the Coastal Act.

12 MR. ABELSON: To your knowledge, Mr.  
13 Luster, has the California Coastal Commission  
14 reviewed this proposed project and provided any  
15 recommendations to the California Energy  
16 Commission regarding the project's consistency and  
17 conformity with the Coastal Act? And if so, what  
18 did the Commission find and recommend in the area  
19 of biological resources?

20 MR. LUSTER: Yes, the Commission has  
21 been involved in the review, and regarding marine  
22 biological resources the Commission issued two  
23 different letters to the Energy Commission  
24 regarding the project's conformity to the Coastal  
25 Act, and what specific provisions would be

1 necessary to insure the project conformed.

2 MR. ABELSON: And calling your attention  
3 to the slide up above, this is Public Resources  
4 Code section 30230 and 30231, are these, to your  
5 knowledge, the policy provisions that the Coastal  
6 Commission made reference to in its review?

7 MR. LUSTER: Yes, they are.

8 MR. ABELSON: And they require that  
9 marine resources be maintained, enhanced, and  
10 where feasible, restored. And further on, be  
11 maintained and where feasible, restored with  
12 regard to entrainment, is that correct?

13 MR. LUSTER: That's correct.

14 MR. ABELSON: I'd like to mark as an  
15 exhibit at this point the April 9th letter from  
16 the Coastal Commission to the Energy Commission.

17 HEARING OFFICER SHEAN: Our practice is  
18 going to just be to refer to it as Coastal  
19 Commission letter of April 9, 2002.

20 MR. ABELSON: That's fine, thank you  
21 very much.

22 In this April 9th letter, Mr. Luster,  
23 did the Coastal Commission make any findings  
24 regarding the biological resource issues in this  
25 case?

1           MR. LUSTER: Yes, it did. It determined  
2           that based on the information available and the  
3           review of the project that the proposal did not  
4           conform to the Coastal Act's policies on marine  
5           biological resources.

6           It further determined that in order to  
7           insure the specific provisions necessary for the  
8           project to conform, an entrainment study would  
9           need to be done to find out what precisely the  
10          adverse effects were, and what sorts of mitigation  
11          measures could be put into place to allow the  
12          project to conform to the Coastal Act.

13          MR. ABELSON: Prior to its actual  
14          adoption of that letter of April 9, do you know  
15          whether a draft of that letter was considered by  
16          the Coastal Commission in any kind of open and  
17          duly noticed public forum?

18          MR. LUSTER: Yes. This letter was heard  
19          by the Commission at its April hearing, April  
20          2002.

21          MR. ABELSON: Was there notice of that  
22          hearing ahead of time?

23          MR. LUSTER: Yes, notice was sent out;  
24          it's generally 10 to 14 days before the meeting.

25          MR. ABELSON: To your knowledge, to your

1 personal knowledge, did the applicant or any  
2 representative of the applicant publicly appear  
3 and present any information to the Coastal  
4 Commission at that public hearing?

5 MR. LUSTER: No. I was present at the  
6 hearing, but no representative of the applicant  
7 presented anything.

8 MR. ABELSON: So, is it accurate to say  
9 then that the Coastal Commission, through the  
10 April 9th letter, as determined by a unanimous  
11 public vote, that this project will not conform to  
12 the California Coastal Act policies that marine  
13 resources be maintained, enhanced, and where  
14 feasible, restored?

15 MR. LUSTER: That's correct.

16 MR. ABELSON: And if I understand  
17 correctly, in that letter the Coastal Commission  
18 also determined and advised the CEC, in that  
19 letter of April 9, that it cannot identify any  
20 specific mitigation measures needed to restore and  
21 enhance marine resources where feasible until a  
22 scientifically sound site-specific entrainment  
23 study has been completed, is that correct?

24 MR. LUSTER: That's correct.

25 MR. ABELSON: All right. To your

1 knowledge, Mr. Luster, has the Coastal Commission  
2 provided any other recommendations, as a  
3 Commission, talking about at the Commission level,  
4 to the Energy Commission concerning biological  
5 resource issues in this case? And if so, would  
6 you please describe what the Coastal Commission,  
7 itself, has recommended?

8 MR. LUSTER: Yes. The Commission also  
9 issued a letter November 6, 2002, again on its  
10 review of the project and some updated  
11 information.

12 With that letter the Commission had  
13 reviewed the CEC Staff alternative option to use  
14 the treated wastewater from Hyperion Treatment  
15 Plant. At the time the Commission determined that  
16 based on available information that alternative  
17 option appeared to be feasible and would conform  
18 to the Coastal Act's marine biological resource  
19 policies.

20 The Commission also determined that  
21 should the Energy Commission not require or  
22 approve that option, and the once-through cooling  
23 was again part of the project, then the site-  
24 specific entrainment study would be needed in  
25 order to insure conformance with the Coastal Act.

1           MR. ABELSON: So, in summary then, in  
2           the November 6th letter, the Coastal Commission  
3           informed the Energy Commission that if the  
4           wastewater alternative were adopted as the cooling  
5           system for this project that would conform to the  
6           Coastal Act?

7           MR. LUSTER: Correct. The marine  
8           resource policies of the Act.

9           MR. ABELSON: All right. Now, prior to  
10          the adoption of the contents of that November 6th  
11          letter, was there open and public notice of that  
12          letter before its adoption?

13          MR. LUSTER: Yes, there was. Again,  
14          notice was sent out usually 10 to 14 days before  
15          the public hearing.

16          MR. ABELSON: To your knowledge did the  
17          applicant or any representative of the applicant  
18          publicly appear and present any information on  
19          this matter to the Coastal Commission with regard  
20          to the November 6th letter?

21          MR. LUSTER: Not to my knowledge. I was  
22          at the hearing and there were no representatives  
23          from the applicant making any presentation.

24          MR. ABELSON: So then in summary, the  
25          Coastal Commission has determined by a unanimous

1 public vote that unless the wastewater alternative  
2 is required, this project, as now proposed, will  
3 not conform to the California Coastal Act policies  
4 that marine resources be maintained, enhanced and  
5 restored where feasible, is that correct?

6 HEARING OFFICER SHEAN: I'm sorry, I'm  
7 going to have to interrupt you because I don't  
8 think that's -- your use of the word now is a  
9 little bit problematic for purposes of clarity of  
10 the record.

11 For the proposal, at the time.

12 MR. ABELSON: Fine, that's fine.

13 HEARING OFFICER SHEAN: Is that --

14 MR. ABELSON: That's fine.

15 HEARING OFFICER SHEAN: All right, with  
16 that amendment, Mr. Luster, you can go ahead and  
17 answer the question.

18 MR. LUSTER: Yes, as of the November 6th  
19 letter, that's correct.

20 MR. ABELSON: And I have no other  
21 questions for Mr. Luster. I have other witnesses.

22 MR. MCKINSEY: I would like to ask Mr.  
23 Luster some questions, given the nature of his  
24 appearance at this time.

25 HEARING OFFICER SHEAN: Sure. However,

1 let's also get in there the February 10 letter,  
2 since he's spoken of the other letters. If you  
3 want to round out the record, have it complete.

4 MR. ABELSON: This is February 10 on the  
5 visual. This is biology -- document -- other  
6 issues.

7 HEARING OFFICER SHEAN: Well, --

8 MR. LUSTER: Actually I believe that's a  
9 staff letter.

10 MR. ABELSON: Oh, I understand what  
11 you're asking, Mr. Shean.

12 Yeah, let me go ahead and ask, Mr.  
13 Luster, one last question then, if I could. Did  
14 the Coastal Commission Staff submit a letter of  
15 January the 22nd, and another letter dated  
16 February the 10th of 2002 that, in effect,  
17 summarize both in direct and in response testimony  
18 what the Coastal Commission's current position is  
19 on this situation?

20 MR. LUSTER: I believe that to be the  
21 case. I don't have copies of those letters with  
22 me.

23 MR. ABELSON: So, what I'd like to do,  
24 Mr. Shean, and again I have no objection at all to  
25 cross-examination, but if we could, perhaps,



1 complete our presentation, the panel's here --

2 HEARING OFFICER SHEAN: Well, where did  
3 you want to go next?

4 MR. ABELSON: Well, I want to go on  
5 directly now with Mr. Schoonmaker about the  
6 wastewater alternative, and our response to that.

7 MR. MCKINSEY: Can I ask a question? Is  
8 Mr. Luster going to be available tomorrow for  
9 cross-examination?

10 MR. LUSTER: Yes, I'll be here at least  
11 through the morning and early afternoon, yes.

12 HEARING OFFICER SHEAN: All right,  
13 that'll be fine.

14 MR. MCKINSEY: We can defer our cross-  
15 examination to that time.

16 HEARING OFFICER SHEAN: Fine, thank you.

17 MR. ABELSON: All right, what I'd like  
18 to do then next, consistent with the approach this  
19 morning, is I have three other members of our  
20 staff that are part of the team that put together  
21 the staff's position on the wastewater  
22 alternative.

23 One of those members you've already been  
24 introduced to and have heard her credentials,  
25 which is Dr. Davis, Noel Davis. But in addition

1 I'd like to take this opportunity to briefly  
2 introduce two additional members who have worked  
3 on the staff's position.

4 The first one is Mr. Jim Schoonmaker.  
5 He has 30-plus years as a registered engineer with  
6 Southern California Edison, followed by five  
7 additional years with Mission Energy. During this  
8 time he has done everything with power plants from  
9 operating them to managing them, to assisting in  
10 the design of them. And he is now a consultant in  
11 private practice. So, this is Mr. Schoonmaker.

12 And in addition, on our wastewater  
13 alternatives team is Mr. Richard Sapudar. Mr.  
14 Sapudar has a bachelor of science in environmental  
15 toxicology from the University of California at  
16 Davis. He has over 20 years of experience in  
17 water quality and wastewater discharge issues,  
18 including work for the petroleum industry, the  
19 State Water Resources Control Board, the  
20 Department of Water Resources, and we're proud to  
21 say, most recently for the last three years,  
22 actually four years now, for the California Energy  
23 Commission.

24 So, I'd like to begin my questioning --

25 HEARING OFFICER SHEAN: Are you going to

1 leave our staff member out, or is he part of this  
2 panel?

3 MR. ABELSON: I'm sorry. My apologies  
4 to -- well, yes, jeez, --

5 (Laughter.)

6 MR. ABELSON: Terrible, terrible thing.  
7 My apology, Rick. And Mr. Rick York, who has a  
8 bachelor of science degree in biological resources  
9 from Humboldt State University. Has been a staff  
10 biologist with the Energy Commission for 14 years,  
11 with prior work experience at the California  
12 Department of Fish and Game, the Bureau of Land  
13 Management, the Nature Conservancy and has worked  
14 on several other once-through cooling projects for  
15 the Energy Commission. My apologies, Rick.  
16 You'll take it out on me afterwards, I'm sure.

17 I'd like to start the questioning in  
18 this area with Mr. Schoonmaker. And could you go  
19 ahead and bring up the next graph, please.

20 DIRECT EXAMINATION

21 BY MR. ABELSON:

22 Q Mr. Schoonmaker, were you the lead  
23 consultant in the staff's effort to determine  
24 whether there was a feasible alternative cooling  
25 system for this project which would eliminate or

1       reduce the adverse biological impacts of the once-  
2       through cooling system using ocean water? And did  
3       you report on what you found?

4               MR. SCHOONMAKER: Yes, sir,  
5       Commissioners, Hearing Officer Shean, I led the  
6       effort to develop the alternative section of the  
7       biology section of the FSA.

8               We reported that in appendix A of that  
9       FSA section. I've been doing that since about  
10      June of last year.

11              MR. ABELSON: Can you call your  
12      attention to the chart which is the next one in  
13      your packet? Can you briefly summarize what you  
14      found as a result of this effort?

15              MR. SCHOONMAKER: Yes, sir. In order to  
16      find ways to eliminate or minimize the impact on  
17      the direct cooling with sea water, we investigated  
18      several other alternatives.

19              As we've listed up there, one of them  
20      that we looked at was dry cooling. This would use  
21      what has now become fairly standard dry cooling  
22      technology or air cooled condensers.

23              At this location we believe this to be a  
24      not feasible alternative because the air cooled  
25      condensers are very large. They would impede on

1 both space, and besides that they're very noisy.  
2 So we would have all noise, visual and space  
3 limitations to it.

4 Wet cooling, that is using a  
5 conventional cooling tower, was also considered.  
6 The difficulties there, as listed there, we would  
7 have problems with the water treatment costs and  
8 visual and space limitations. And those  
9 essentially left the use of cooling towers here as  
10 not a feasible option.

11 And finally we looked at a hybrid  
12 cooling options and there basically we're  
13 attempting to eliminate part of the visual  
14 problems by eliminating the plumes. And when  
15 looking at that we basically had the same kind of  
16 limitations that we had on the wet cooling.

17 Finally we looked at wastewater cooling;  
18 and under the wastewater cooling we were able to  
19 find no fatal flaws, is the engineering term we  
20 use. We found nothing that would make that not  
21 feasible.

22 MR. ABELSON: All right, if we could  
23 bring up the next slide, please. In order to get  
24 the Committee oriented towards how this proposal,  
25 this wastewater cooling proposal works, could you

1 walk them through, beginning in the center of the  
2 page pretty much, Mr. Schoonmaker, where the  
3 existing Hyperion Plant is, and basic schematic of  
4 how things are currently operating before the  
5 proposal would be in place?

6 MR. SCHOONMAKER: Yes, sir. As has been  
7 indicated by other witnesses, the Hyperion  
8 Treatment Plant is located approximately a mile  
9 north of the proposed development.

10 The Hyperion Plant collects sewage from  
11 the City of Los Angeles and a few nearby cities.  
12 Treats that. This is part of the Los Angeles  
13 Bureau of Sanitation, and it's their Hyperion  
14 Water Treatment Plant.

15 It treats the incoming sewage to primary  
16 and secondary treatment levels. The sewage then  
17 is collected at a holding pond or discharge well.  
18 And from that holding pond is directed either by  
19 gravity or by pumping to what's called the five-  
20 mile outfall pipe. And discharged to the ocean at  
21 about 200 foot depth, five miles offshore.

22 MR. ABELSON: Now you indicated that the  
23 El Segundo project is located where, is that south  
24 of Hyperion?

25 MR. SCHOONMAKER: Yes, sir. The El

1       Segundo project is south. and I think the actual  
2       dimension is something like 4000 feet.

3               MR. ABELSON: Four thousand feet to the  
4       south?

5               MR. SCHOONMAKER: Four thousand feet to  
6       the south, borderline to borderline.

7               MR. ABELSON: Very good. Bring up the  
8       next slide for us, please. Mr. Schoonmaker, would  
9       you describe for the Committee briefly how the  
10      proposed wastewater alternative that you have in  
11      mind would work, using the next slide to help us  
12      visualize it?

13              MR. SCHOONMAKER: Yes, sir. We have  
14      simplified things considerably as you'll  
15      appreciate, but the holding pond here is where the  
16      Hyperion waste is collected prior to its  
17      discharge. There's about 360 million gallons a  
18      day average available there that's otherwise  
19      discharged.

20              We propose putting in a pipeline from  
21      that holding pond with pumps up in this area as  
22      required.

23              MR. ABELSON: Is that the square yellow  
24      box, the pumps?

25              MR. SCHOONMAKER: Yes. And pump the

1 secondary treated wastewater into the forebay of  
2 the El Segundo Power Plant. And from there the  
3 pumps that collect the water and pump it through  
4 the plant condensers would be allowed to do the  
5 same. And return the water through another  
6 discharge line back to the Hyperion five-mile  
7 outfall where it would be discharged just as it  
8 would have been had we never taken it out.

9 MR. ABELSON: So the water would  
10 basically go in a loop that's about three-quarters  
11 of a mile one direction, and up to a mile,  
12 whatever the distance is, going back the other  
13 way, and end up right back where it started?

14 MR. SCHOONMAKER: Essentially, yes.

15 MR. ABELSON: Can you tell me, is anyone  
16 else currently taking and using any of the  
17 wastewater from that Hyperion holding pond? And  
18 if so, who and how much, to your knowledge?

19 MR. SCHOONMAKER: As noted up here,  
20 another offtaker is the West Basin Municipal Water  
21 District. The West Basin Plant takes secondary  
22 effluent from Hyperion, the same water that we  
23 would be using. They treat that to a tertiary  
24 level at a rate of up to 30 million gallons per  
25 day. They sell that water on to customers in the



1 Los Angeles area for use in process and cooling  
2 purposes as a treated water.

3 MR. ABELSON: Do they have any return  
4 flows back to the Hyperion Plant?

5 MR. SCHOONMAKER: Yes. Part of their  
6 process they generate some, what I call blowdown,  
7 some waste product that is then returned to  
8 Hyperion and joins the rest of the Hyperion flow  
9 and is discharged out the five-mile outfall.

10 PRESIDING MEMBER PERNELL: So they  
11 actually discharge waste products five miles out?

12 MR. SCHOONMAKER: Yes, sir, this  
13 secondary treated water from Hyperion, joined with  
14 the blowdown from the West Basin process, which is  
15 in essence a brine.

16 MR. ABELSON: Let me ask a question,  
17 too, on that, if I could then. As you explained  
18 in the beginning chart, Hyperion treats the raw  
19 sewage that's coming in; then discharges it as you  
20 described to a holding pond. And then it's  
21 pumped, Commissioner, out, I believe this is  
22 correct, Mr. Schoonmaker, it's pumped out as a  
23 secondary treated water about five miles and  
24 discharged, is that correct?

25 MR. SCHOONMAKER: That's correct. It's

1 pumped as necessary. Sometimes there's enough  
2 gravity head that pumping is not required. But  
3 it's pumped as necessary.

4 MR. ABELSON: Do you happen to know the  
5 depth at which it's discharged into the ocean?

6 MR. SCHOONMAKER: Yes, I think I  
7 mentioned that. It's 200 feet approximately, 60  
8 meters at the discharge point. The discharge  
9 point is actually a little more complex than we've  
10 indicated here. It's a Y; there's some horizontal  
11 diffusers. And these Y's are about 4000 foot long  
12 on each leg. But that's a detail. It's simply a  
13 diffusing process.

14 CHAIRMAN KEESE: I have two questions.  
15 Where is the West Basin Treatment Plant located?

16 MR. SCHOONMAKER: Sorry, Mr. Keese.  
17 Yes, as we've located up here, it's physically  
18 located actually south of Hyperion a little bit.  
19 I didn't have room to put them both on the same  
20 drawing.

21 But takes its feed for its purposes from  
22 a portion of the Hyperion Treatment Plant --

23 CHAIRMAN KEESE: So it's basically  
24 adjacent to Hyperion?

25 MR. SCHOONMAKER: Yes, adjacent being

1       within a mile. I'm sorry, I don't know the  
2       dimensions --

3               CHAIRMAN KEESE: Are you saying it's  
4       between Hyperion and the power plant?

5               MR. SCHOONMAKER: No. No. It's located  
6       in another direction.

7               CHAIRMAN KEESE: Okay. And it takes it  
8       to tertiary?

9               MR. SCHOONMAKER: Yes.

10              CHAIRMAN KEESE: Is tertiary what would  
11       be required --

12              MR. SCHOONMAKER: No, for the  
13       purposes --

14              CHAIRMAN KEESE: -- for this power  
15       plant?

16              MR. SCHOONMAKER: -- for El Segundo's  
17       cooling purposes, no. We would believe that  
18       secondary treated water could be used.

19              CHAIRMAN KEESE: Is that standard? That  
20       power plants use secondary --

21              MR. SCHOONMAKER: We will --

22              CHAIRMAN KEESE: -- treated water?

23              MR. SCHOONMAKER: -- address that as  
24       further on, it has been done. It's been done a  
25       few times. It's not as common as using tertiary.

1           CHAIRMAN KEESE:  And how much secondary  
2           are you suggesting they should use?

3           MR. SCHOONMAKER:  It would vary, but  
4           they would use 150- to 200 million gallons a day  
5           typically.

6           MR. ABELSON:  Because of the once-  
7           through cooling feature.  The fact that it's not  
8           being held in the tower.

9           CHAIRMAN KEESE:  So you're asking them  
10          to pick up a portion of their current cooling  
11          through recycled water?

12          MR. SCHOONMAKER:  All of it.  All of  
13          their cooling requirements would be accomplished  
14          by the wastewater; by heating the wastewater only.

15          CHAIRMAN KEESE:  Is that --

16          PRESIDING MEMBER PERNELL:  Have you --  
17          go ahead.

18          CHAIRMAN KEESE:  Okay, I thought staff  
19          had indicated that if you come down to the 110  
20          million -- billion gallons a year, that that was  
21          what you wanted?

22          MR. ABELSON:  No.  We indicated that  
23          that would satisfy the notion of the CEQA  
24          baseline.  There's a whole other set of  
25          requirements under the law which is to restore and

1 enhance to the extent feasible. That's restore  
2 and enhance, it's not simply to maintain existing  
3 levels.

4 So in order to do that you have to kind  
5 of undo the damage that's already there. And this  
6 issue is, at least in part, a function of that  
7 problem.

8 Mr. Schoonmaker, is the -- I'm sorry --

9 HEARING OFFICER SHEAN: Excuse me.

10 Let's make this clear then. Is the wastewater  
11 alternative for the new project only, or for the  
12 new project and the remaining existing unit?

13 MR. ABELSON: It would be, for our  
14 purposes, acceptable to have it provide the water  
15 for the new project only because the existing  
16 project is not seeking a license.

17 But what we've done for planning  
18 purposes is basically work with the facility cap  
19 that the applicant has talked about, because that  
20 cap is quite important for CEQA.

21 You have two laws that you're trying to  
22 answer here. CEQA's one of them. And you need to  
23 capture that. And then you have an issue of  
24 restore and enhance, in addition.

25 The reclaimed wastewater could certainly

1 be used to simply address the needs of the new  
2 project.

3 PRESIDING MEMBER PERNELL: Mr.  
4 Schoonmaker, in your analysis did you study the  
5 reliability of this plant?

6 MR. SCHOONMAKER: I reviewed that, yes.  
7 The Hyperion Plant has had a very high degree of  
8 reliability since their major rework, which the  
9 date escapes me at the moment, but it was, I  
10 think, sometime in the '80s. And since that time  
11 they've not had occasion where they've been forced  
12 to put untreated sewage into the ocean. That had  
13 been a problem in prior years. But their  
14 reliability has been very high, and they've not  
15 been required to go to that effort or that problem  
16 since then.

17 PRESIDING MEMBER PERNELL: Well, I  
18 recall -- the reason I ask, I recall maybe a  
19 couple years ago where the beaches were closed.  
20 Was that a result of this plant?

21 MR. SCHOONMAKER: I know of that  
22 happening at Orange County. I don't know of that  
23 happening as it related to Hyperion.

24 PRESIDING MEMBER PERNELL: It was El  
25 Segundo's -- well, yeah, El Segundo's beaches.

1 MR. SCHOONMAKER: I'm not aware of that.

2 UNIDENTIFIED SPEAKER: Huntington Beach.  
3 Huntington Beach.

4 MR. SCHOONMAKER: Yes, that's happened  
5 in Huntington Beach quite a few times. And I  
6 don't claim expertise on this. It so happens that  
7 I'm --

8 PRESIDING MEMBER PERNELL: All right, I  
9 just asked. But reliability is, as you can  
10 imagine, it's key for these -- well, for the  
11 state. And as this alternative proposal is, if  
12 that plant goes down so does the proposed power  
13 plant?

14 MR. ABELSON: If the Committee would  
15 allow us to finish our questioning, we have all  
16 these issues addressed in sequence, including that  
17 one, which is a very important question. And if I  
18 could proceed, we'll get to them in about five  
19 minutes.

20 HEARING OFFICER SHEAN: Okay.

21 MR. ABELSON: Now, Mr. Schoonmaker, in  
22 the applicant's written direct and rebuttal  
23 testimony, as well as in their oral presentation  
24 today, they contend that there are several factors  
25 that would make the wastewater alternative

1 feasible. Including the need to add chlorine to  
2 avoid bio-fouling, and the need to meet certain  
3 temperature standards in order to get what they  
4 described as a new NPDES permit.

5 Have you and your team reviewed the  
6 applicant's concerns? And what is your  
7 professional judgment about the merits of those  
8 particular concerns?

9 MR. SCHOONMAKER: Yes, sir,  
10 Commissioners. We have reviewed all of those  
11 documents, that is myself, Mr. Sapudar and Dr.  
12 Davis. And we believe that all of those can be  
13 managed quite handily.

14 MR. ABELSON: Well, let me turn first to  
15 the chlorine concern. I'd like you to begin by  
16 helping the Committee to understand why it's an  
17 issue at all, and why you concluded that it  
18 doesn't render this alternative infeasible.

19 MR. SCHOONMAKER: Okay, if we could have  
20 the next slide, please. Any water product will  
21 have a tendency for things to grow in it. And the  
22 more nutrients in that water the greater that  
23 tendency, as would be no surprise.

24 And left untreated, the wastewater from  
25 Hyperion, one would expect to support the growth



1 of algae and slimes and other bio-fouling, I  
2 think is the term that's been used previously.

3 One of the standard ways of treating  
4 that problem is to chlorinate. We do chlorinate  
5 in order to cause the microbio-fouling elements to  
6 go away, in essence.

7 MR. ABELSON: Why is that use of  
8 chlorine, if it's appropriate -- well, first of  
9 all, is it your opinion that it would be  
10 appropriate to use chlorine for that function in  
11 this particular alternative?

12 MR. SCHOONMAKER: I think chlorine is a  
13 viable option. There's several other viable  
14 options, as well. Chlorine would be the pretty  
15 much standard option.

16 MR. ABELSON: Let's pay attention for a  
17 moment then to the chlorine, itself. You  
18 concluded that even if it's used, which is a not  
19 uncommon phenomenon, that it's not a problem. Can  
20 you help the Committee understand why that's true?

21 MR. SCHOONMAKER: Yes, sir. The problem  
22 with chlorine is not so much in its use as in  
23 getting rid of it after it's used. So it's having  
24 the chlorine go in, and then the necessity of  
25 deactivating the chlorine that's left over after

1 the process completes, after you've done the  
2 microbiological prevention that you want to do.

3 There are several plants that have a  
4 successful plan of chlorination and  
5 dechlorination. I don't know if any of you  
6 Commissioners worked on the Carson Ice Gen Power  
7 plant, but that's one that uses secondary water.  
8 And it has chlorination and then dechlorination  
9 before it's discharged into a fresh water river  
10 environment.

11 MR. ABELSON: Is there any other factor  
12 besides the fact that you know of some plants that  
13 are dealing with it that leads you to believe  
14 chlorine is not going to be a problem?

15 MR. SCHOONMAKER: Well, --

16 MR. ABELSON: In this particular  
17 situation.

18 MR. SCHOONMAKER: -- there's actually  
19 one other plant I'd really like to mention.  
20 That's the Magnolia Power Plant in the City of  
21 Burbank that's been using wastewater for about 30  
22 years. And they are the most experienced people  
23 that I know of. And their experience has been  
24 really good. They used it; they maintain a level  
25 of chlorination and a subsequent dechlorination.

1 And report that with the correct selection of  
2 condenser metals that they don't have a corrosion  
3 problem. And they don't have a problem of hard  
4 deposits, and it's worked quite well.

5 But, yes, there is another factor  
6 involved. That is the deactivation of the  
7 chlorine as a function of time more than anything  
8 else. And the nutrients that are available.

9 So we talk about here, the chlorine  
10 needs to be effective at the condenser. From the  
11 condenser it would go back to Hyperion, if you  
12 remember the diagram. That's about a 20-minute  
13 ride. So the chlorine has another 20 minutes  
14 before it reaches Hyperion to deactivate itself.  
15 Basically turn it from free chlorine into sodium  
16 chloride or other chloride salts.

17 CHAIRMAN KEESE: So, you add the  
18 chlorine at the power plant? Or do you add it at  
19 Hyperion before it moves towards the power plant?

20 MR. SCHOONMAKER: Well, that would be an  
21 engineering decision. But I would presume they  
22 would add at the plant.

23 CHAIRMAN KEESE: Okay.

24 MR. SCHOONMAKER: It would be easier.  
25 There's not much need to chlorinate the pipe

1       between the two.

2               CHAIRMAN KEESE:   That it runs through?

3               MR. SCHOONMAKER:   Yes, correct.

4       Correct, Commissioners.   Once it returns to  
5       Hyperion then it matches the flow that was not  
6       taken at the power plant and there's further  
7       elements in there that will tend to deactivate the  
8       chlorine; the same nutrients that we were worried  
9       about in the first place, since the Hyperion  
10      treatment process does not include any  
11      chlorination.

12              And it's about an hour's ride for the  
13      water to get from the Hyperion Plant all the way  
14      to the discharge.

15              MR. ABELSON:   About five miles out?

16              MR. SCHOONMAKER:   About five miles out,  
17      yes, exactly.

18              PRESIDING MEMBER PERNELL:   Is that water  
19      still warm?

20              MR. SCHOONMAKER:   The Hyperion water --

21              PRESIDING MEMBER PERNELL:   When it gets  
22      five miles out?

23              MR. SCHOONMAKER:   -- would be as  
24      whatever temperature it had been.   Then the  
25      mixture of the two.   It would be warmer than it

1 was at Hyperion, but, yes, it would still be warm.

2 MR. ABELSON: Any other basis for your  
3 expectation that chlorine should not be a problem,  
4 per se, in this case?

5 MR. SCHOONMAKER: We know of no reason,  
6 support from the team members here, that variances  
7 have been granted to El Segundo Power Plant and a  
8 variety of other plants for the use of chlorine.  
9 So it's not a new phenomenon; chlorine is commonly  
10 used in coastal power plants.

11 MR. ABELSON: In summary, Mr.  
12 Schoonmaker, is it correct to say that based on  
13 your knowledge, experience and professional  
14 judgment the wastewater alternative for this  
15 project appears to be feasible. And the applicant  
16 has not presented any convincing evidence on its  
17 chlorine concerns to prove that this alternative  
18 is not feasible?

19 MR. SCHOONMAKER: That's correct.

20 MR. ABELSON: I'd like to turn to Mr.  
21 Sapudar, if I could.

22 DIRECT EXAMINATION

23 BY MR. ABELSON:

24 Q And ask, Mr. Sapudar, have you reviewed  
25 the applicant's concerns about the thermal

1 characteristics of the wastewater alternative?

2 MR. SAPUDAR: Yes, I have.

3 MR. ABELSON: Could you briefly explain  
4 why the thermal characteristics of the wastewater  
5 alternative is an issue, but does not render the  
6 alternative infeasible?

7 MR. SAPUDAR: Yeah, what we're looking  
8 at here is we're looking at the alternative  
9 proposal as compared to the existing proposal.

10 What we've got with the current proposal  
11 is -- or the current discharge is the El Segundo  
12 Power Plant takes in cooling water at its own  
13 intake at a temperature of about 57 to 70 degrees  
14 from the ocean.

15 It's heated and discharged of El  
16 Segundo's own outfall, which is about a half mile  
17 long and about 30 feet deep, so it's relatively  
18 shallow. The thermal limit on that discharge for  
19 El Segundo as it exists now is 105 degrees  
20 Fahrenheit.

21 The alternative proposal which Mr.  
22 Schoonmaker just described would use wastewater  
23 from the Hyperion Treatment Plant which would  
24 arrive at El Segundo at about 68 to 85 degrees;  
25 would be used to cool the power plant, and it

1 would be discharged back to Hyperion and  
2 ultimately out the Hyperion outfall, five-mile  
3 outfall in relatively deep water of 200 feet.

4 The thermal limit --

5 PRESIDING MEMBER PERNELL: Do you know  
6 what degrees it would be at when they get that  
7 five miles out, 200 feet deep?

8 MR. SAPUDAR: Yeah, it would be -- Mr.  
9 Schoonmaker will also cover that. But it would  
10 be, I believe, about a 15- to 20-degree  
11 temperature rise, in that range.

12 MR. ABELSON: So, before you go on let  
13 me be sure that I'm clear on why there's even an  
14 issue here, which is that they're currently  
15 withdrawing water from the ocean which is at 57 to  
16 70 degrees, and then warming it up 15 degrees or  
17 whatever. Whereas if they got the wastewater that  
18 comes to them at a already higher temperature than  
19 the ocean water does. And the question becomes  
20 whether or not adding 15 or 20 degrees or whatever  
21 it may be to that somehow causes the problem. Is  
22 that the reason we have an issue here?

23 MR. SAPUDAR: That's exactly it.

24 CHAIRMAN KEESE: Excuse me, I guess I  
25 misunderstood. I thought I heard you say 57 to 70

1 and it goes out at 105.

2 MR. SAPUDAR: I said the maximum  
3 temperature limit for the existing El Segundo  
4 outfall in its NPDES permit is 105 degrees. So  
5 that's the absolute maximum.

6 CHAIRMAN KEESE: But it goes out about  
7 15 more?

8 MR. SAPUDAR: It goes out, I think,  
9 around 85 degrees, something like that.

10 UNIDENTIFIED SPEAKER: -- 85 to 98.

11 MR. SAPUDAR: Except for the heat  
12 treatment, when they use higher temperatures for  
13 short periods of time to control bio-fouling.

14 CHAIRMAN KEESE: I just want to know  
15 what numbers we're comparing here. I didn't  
16 understand 105 versus plus 15.

17 MR. ABELSON: Let me just, before we go  
18 on, this is very important to get this foundation  
19 clear. And it's easy to confuse it, for sure.

20 So, if you're bringing the water in at  
21 57 to 70, which is the ocean temperature. And  
22 just to make up the example it's adding 15, you'd  
23 be discharging, I take it, just based on the map  
24 at somewhere between 72 and 85?

25 MR. SAPUDAR: Exactly right.



1           MR. ABELSON: Whereas if you bring the  
2           water in at 68 to 85, the warmer water from the  
3           wastewater plant, and you add 15, you'd be  
4           discharging at, the math would be 83 to 100, is  
5           that correct?

6           MR. SAPUDAR: Yes, it is.

7           MR. ABELSON: All right. Now, Mr.  
8           Schoonmaker, would the project, in your  
9           professional opinion, be required to comply with  
10          this 20 degree ambient temperature standard that  
11          the applicant has talked about from the California  
12          thermal plan, which says if you discharge into the  
13          ocean you shouldn't be more than 20 degrees above  
14          the temperature of the ocean. Would they be  
15          required to meet that standard? Get the next  
16          slide, thank you.

17          MR. SAPUDAR: At this point the issue  
18          becomes where the thermal plan is applied, and  
19          it's a California thermal plant, which is  
20          primarily applies to discharges within the  
21          California territorial waters which extend  
22          approximately three miles out from the coast.

23          Under the alternative scenario the  
24          discharge would now be discharging at five miles  
25          using the Hyperion discharge, which is in federal

1       waters, and would be subject to the federal  
2       effluent limitations.

3               MR. ABELSON:  So you're saying it's  
4       possible because they're in federal waters rather  
5       than state waters, that the California State plan  
6       may not apply at all?

7               MR. SAPUDAR:  Exactly right, and the  
8       point there would be the state plan can be applied  
9       to discharges in federal waters if the discharges  
10      in federal waters can affect state waters.

11              So we're looking at, within that two-  
12      mile difference between California's territorial  
13      waters and the federal waters, would there be an  
14      impact to state waters from the thermal --

15              MR. ABELSON:  Have we done any modeling  
16      to see if, perhaps, even though it's discharged at  
17      five miles, it somehow floats back into state  
18      waters and impacts it?

19              MR. SAPUDAR:  We have, using some  
20      limited data, and we have done some preliminary  
21      estimates using models.  Mr. Schoonmaker has  
22      worked on that, and we see no impacts to state  
23      waters from the thermal increase to the Hyperion  
24      discharge.

25              MR. ABELSON:  Let me ask you this.  If,

1       for the moment, we assume that the proper standard  
2       is not the California State plan, but rather is  
3       the federal standard because the discharge is  
4       occurring five miles out in federal waters, if we  
5       assume that, what is that standard? Is it 20  
6       degrees, or what is it?

7               MR. SAPUDAR: Federal law under the  
8       Clean Water Act does not prescribe a value or a  
9       limit for thermal discharges in federal waters.  
10      What the federal plan does is it uses the 316A  
11      criteria, which is a biologically based impact  
12      test or demonstration. And we've got some of the  
13      language up there.

14             The most important thing that the 316A  
15      procedures approach is they must demonstrate that  
16      it will assure protection and propagation of a  
17      balanced indigenous population of shellfish, fish  
18      and wildlife in and on that body of the water is  
19      the take-home message from 316A.

20             MR. ABELSON: So based on that language,  
21      if you could assure the protection and propagation  
22      of a balanced indigenous population of shellfish  
23      and wildlife and on that body of water, would the  
24      23 standard, at least based on those words, apply?

25             MR. SAPUDAR: Not necessarily. If there

1       could be no demonstration that there was an impact  
2       caused from the increase in thermal loading.

3               MR. ABELSON: Well, let me turn then to  
4       a more conservative assumption, if I could --

5               PRESIDING MEMBER PERNELL: Before you do  
6       that, let me ask a question because I mean a lot  
7       of this is based on the environmental concerns of  
8       the fish and wildlife. Do the fish know whether  
9       you're in state water or federal water?

10              (Laughter.)

11             PRESIDING MEMBER PERNELL: I mean if  
12       you're concerned about the environment, whether  
13       you're in state water or federal water doesn't  
14       matter. Somebody's getting hurt.

15             MR. ABELSON: Yeah, I think -- let me  
16       just say that I think that staff's correct, but  
17       the question is do you have to stay at not more  
18       than 20 degrees to not hurt the fish, or is the  
19       test, under the federal law, at least, proving  
20       that you will not hurt the fish, regardless of  
21       where they're living.

22             And the test under the federal law is  
23       proving that you will not hurt the fish.

24             PRESIDING MEMBER PERNELL: And I don't  
25       want to debate this, but a 316B study is a

1       thorough study, correct?

2               MR. ABELSON:  Yes, in this case we're  
3       talking about a 316A --

4               PRESIDING MEMBER PERNELL:  I know what  
5       we're talking about, but I heard earlier that the  
6       316B study that the feds do is not necessarily  
7       correct.  So, --

8               MR. ABELSON:  Right, I wanted to clarify  
9       the difference between 316B and 316A.  316B is the  
10      entrainment problem that we've been talking about,  
11      and there are serious problems with that, with  
12      those studies at this time.

13              What we're now talking about,  
14      Commissioner, is a slightly different section of  
15      the federal law, 316A, which has to do with  
16      thermal or hot water as opposed to entrainment  
17      coming in.

18              And there the issue is not whether or  
19      not their technologies are okay, the people are  
20      reasonably satisfied with the current status of  
21      that method.

22              HEARING OFFICER SHEAN:  Let me just  
23      state for the record, since, Mr. Abelson, you've  
24      not been sworn as a witness, that the statements  
25      that are made by you are, at best, comment.  And I

1 think you know that. So, if there are factual  
2 matters that you want in the record, they're  
3 probably better done through a witness.

4 MR. ABELSON: My apologies. I was  
5 simply trying to clarify --

6 HEARING OFFICER SHEAN: Okay, just  
7 overall, --

8 MR. GARCIA: I have a question.  
9 Earlier, I think it was Mr. Sapudar that indicated  
10 that the expected delta T across the condenser was  
11 something in the neighborhood of 15 degrees. But  
12 I thought I recalled applicant indicating it's  
13 more like 22 degrees.

14 Would you explain the difference in your  
15 bases?

16 MR. SCHOONMAKER: Yes, Mr. Garcia, the  
17 delta T across the condenser will vary depending  
18 upon the load on the unit. When the power plant,  
19 and if we're talking about the existing power  
20 plant, is at very low loads, the delta T will be  
21 very small.

22 With the proposed power plant at full  
23 load the applicant is showing heat balances in his  
24 application for certification that indicated a 19  
25 degree temperature rise under the highest

1 temperature conditions.

2 So it's hard to compare apples and  
3 oranges here, but it might vary anywhere from very  
4 small up to 19 degrees.

5 MR. GARCIA: Wouldn't it make sense to  
6 be talking in terms of maximum load that the  
7 particular unit would be subject to? I mean if  
8 it's going to be carrying full load, it would be  
9 kind of silly, to me, to base the arguments on  
10 much lower proposed delta T.

11 MR. ABELSON: If the Committee will be  
12 patient with us, these are all questions we  
13 intended to address in just another couple  
14 minutes. We're going right through these points  
15 that are all terribly important.

16 HEARING OFFICER SHEAN: Okay.

17 MR. ABELSON: I want to take a more  
18 conservative approach for the moment with the  
19 witnesses and ask if the California thermal plan  
20 does apply, because the stuff is contacting state  
21 waters, or from some other reason, would -- Mr.  
22 Sapudar, would this make, in your judgment the  
23 wastewater alternative infeasible?

24 MR. SAPUDAR: I don't believe it does.  
25 And there's a couple reasons for that. The

1 California thermal plan actually incorporates the  
2 316A procedure as part of a variance procedure for  
3 the California thermal plan. It's incorporated by  
4 reference, as the means that that's achieved.

5 The other thing is there's no evidence  
6 of a need for a new permit at this time. And  
7 whether the thermal plan new permit criteria would  
8 apply.

9 MR. ABELSON: Can you explain -- I want  
10 to start with that latter point first. When you  
11 say that you're uncertain as to whether or not  
12 there is a need for a new NPDES permit, that seems  
13 unusual. How did you reach that conclusion?

14 MR. SAPUDAR: What we looked at is the  
15 Hyperion Treatment Plant receiving El Segundo's  
16 return cooling water as basically an industrial  
17 wastewater discharge, much as any other industrial  
18 discharger would discharge to any other POTW.

19 That would subject the El Segundo  
20 discharge to Hyperion's industrial water discharge  
21 standards.

22 And what we did is we looked through the  
23 Department of Public Works sanitation from the  
24 City of L.A.'s regulations and we really didn't  
25 see anything that would cause the El Segundo



1 discharge to be rejected at this time. There is  
2 no evidence of that.

3 MR. ABELSON: Is El Segundo discharging  
4 into the scheme, under the wastewater scheme, is  
5 it discharging into receiving waters, or is it  
6 discharging into something else?

7 MR. SAPUDAR: El Segundo, under the  
8 alternative, would be discharging to Hyperion, and  
9 the water would be discharging through Hyperion's  
10 outfall to receiving waters.

11 MR. ABELSON: All right.

12 HEARING OFFICER SHEAN: Are the  
13 industrial uses that you're talking about which  
14 flow to Hyperion coming in the front door, or  
15 going out the backdoor as this return from El  
16 Segundo is described, at least in your  
17 documentation?

18 MR. SAPUDAR: In alternative it comes in  
19 at the end of the treatment process prior to  
20 discharge. It doesn't go into the headworks of  
21 the treatment plant.

22 HEARING OFFICER SHEAN: And to the  
23 extent you have analogized the situation with  
24 respect to the need for a permit, to El Segundo  
25 being like any other industrial discharger, is the

1 discharge that comes from those going in the front  
2 door and being treated, or arrive at the, as you  
3 call it, holding pond or discharge well, without  
4 treatment?

5 MR. SAPUDAR: I'd say probably most of  
6 those discharges would go to the headworks and go  
7 through the treatment plant.

8 HEARING OFFICER SHEAN: Well, do you  
9 know of any that are not?

10 MR. SAPUDAR: Not personally, no.

11 HEARING OFFICER SHEAN: Okay.

12 MR. SCHOONMAKER: The West Basin  
13 obviously is the one that goes to the discharge;  
14 however, it's also the one that may have its own  
15 NPDES permit, as well.

16 HEARING OFFICER SHEAN: All right, so  
17 under those circumstances then more similar to El  
18 Segundo than the other industrial users?

19 MR. SAPUDAR: It is --

20 HEARING OFFICER SHEAN: And if so, --  
21 all right.

22 MR. SAPUDAR: Oh, no, I can explain.  
23 Yeah, the West Basin basically uses the same  
24 outfall as Hyperion. And how it's set up is they  
25 have their own point of compliance on that

1 outfall, and they have their own NPDES permit.

2 So they do use the same outfall, the  
3 waste is mixed, and as Mr. Schoonmaker's  
4 described, it's a brine from the reclamation  
5 process. And it is discharged along with  
6 Hyperion's secondary treatment.

7 HEARING OFFICER SHEAN: Thank you.

8 MR. ABELSON: You also mentioned the  
9 possibility of obtaining some type of a variance  
10 under the California thermal plan, and I'm  
11 wondering if I could redirect to Mr. Schoonmaker  
12 what you have found, Mr. Schoonmaker, about any  
13 possible thermal temperature variances above the  
14 100 degrees that's the current limit for Hyperion?  
15 Could we bring up the next slide.

16 MR. SCHOONMAKER: Yes, sir, to address  
17 particularly Commissioner Pernell's question, what  
18 I've tried to represent here is the flow from the  
19 Hyperion Power Plant over a day, a typical day in  
20 the blue or upper curve, and a reasonable worst  
21 case day in the lower or brown curve.

22 MR. ABELSON: Let me start and ask you  
23 what the hash line at the bottom of this is.

24 MR. SCHOONMAKER: That hash line at the  
25 bottom is the flow to the West Basin Municipal

1 Water District, as if it were a continuous flow.

2 We really don't know the specifics of the day and  
3 night flow rate. We only know that the average  
4 flow rate is 30 million gallons a day.

5 MR. ABELSON: All right, now the next  
6 line up is at the 180 million gallon level, which  
7 is 150 million gallon difference. Why is there a  
8 150 million gallon difference between these lines?

9 MR. SCHOONMAKER: At 150 million gallons  
10 per day, and given the temperatures that we know  
11 of that the Hyperion flow comes in, we're able to  
12 discharge with a maximum of 105 degrees, even with  
13 as much as full combined cycle load on the power  
14 plant. So, the 180 is the number that we wish we  
15 would have of all times to meet that criteria of  
16 not having a problem with 105 degrees discharge.

17 MR. ABELSON: So to clarify, 105 is more  
18 than 100; it was used to determine what?

19 MR. SCHOONMAKER: We used 105 to  
20 determine the buoyancy of the Hyperion discharge  
21 when it is discharged with that additional thermal  
22 impact.

23 MR. ABELSON: Did you find any adverse  
24 thermal impacts at 105?

25 MR. SCHOONMAKER: At 105 we found very

1 minor thermal impacts; that minor being about 3  
2 percent increase in the plume height, and about a  
3 7 percent actual improvement in the mixing. Which  
4 is about as one would expect in that the primary  
5 cause of the generation of a plume at discharge is  
6 due to the salinity differences, rather than  
7 temperature. The temperature is a small effect.

8 MR. ABELSON: So going back to the  
9 graph, if I understand what you're saying at this  
10 juncture is that if you have 150 million gallons  
11 available you can stay below, at or below 105,  
12 which in turn does not appear to be a problem, is  
13 that correct?

14 MR. SCHOONMAKER: That's correct.

15 MR. ABELSON: All right, now looking at  
16 the graph there's a red line and there's a blue  
17 line, and both of them seem to go slightly below  
18 the El Segundo 180 line between, somewhere between  
19 6 and 12 on the clock. What's happening there?

20 MR. SCHOONMAKER: Those are the hours at  
21 which there would be less than our desired 150  
22 million gallons a day. And therefore, we could  
23 conceivably have discharge temperatures over 105,  
24 given the extreme conditions.

25 We have some compensation for that in

1       that we believe that the sewage temperatures in  
2       the early morning hours here, we're looking at  
3       5:00 a.m. to 9:00 a.m. kinds of hours, that they  
4       will be less than the peak temperatures during the  
5       day, so that's somewhat of a compensation.

6               MR. ABELSON:  Let me stop you on that.  
7       What you're saying is that we're trying to stay  
8       below 105.  If you get less than 150 million  
9       gallons it could be an issue, but if the water  
10      that you're getting at that lower flow is pretty  
11      cool, let's say the lower end of the waste stream  
12      as opposed to the higher end, then you'd still  
13      stay below the 105?

14             MR. SCHOONMAKER:  That's correct.

15             MR. ABELSON:  Is there anything else --

16             MR. SMITH:  Excuse me, may I interrupt?

17             MR. ABELSON:  Sure.

18             HEARING OFFICER SHEAN:  Why would you  
19      believe that -- or what factors support your  
20      belief that that 5:00 a.m. to 9:00 a.m. wastewater  
21      in the system is going to be cooler?

22             MR. SCHOONMAKER:  The wastewater  
23      temperature appears to be a function of the  
24      ambient temperature, the air temperature, more  
25      than any other single factor, Mr Shean.  And we're

1 just obviously looking at a day and night  
2 variation. And, you know, we would expect, as --  
3 we know it happens over the seasons, we would  
4 expect it would happen over the day, as well.

5 HEARING OFFICER SHEAN: All right.

6 MR. ABELSON: So the other question then  
7 I have is this, again in this small period of  
8 time, first of all, how often does that occur in  
9 your experience, based on the data that's  
10 available?

11 MR. SCHOONMAKER: The reasonable worst  
12 case data is given very low, the historical low  
13 flow for the year 2002 data that we have. So that  
14 happened once in 2002.

15 MR. ABELSON: One day in 2002?

16 MR. SCHOONMAKER: One day. Looking at a  
17 -- let me clarify. That was with a half a year's  
18 worth of data.

19 Giving reasonable expectations we think,  
20 you know, we might have plus or minus five days a  
21 year that we would be at about that same level,  
22 that reasonable worst case level.

23 MR. ABELSON: In addition to the  
24 wastewater perhaps being cooler because it is in  
25 the early morning hours, is there anything else

1       that would lead you to believe that you would be  
2       unlikely to exceed 105, which in turn has been  
3       modeled and found not to cause any problems?

4               MR. SCHOONMAKER: One of the other  
5       factors that we've talked about is that that's  
6       also the time of day that tends towards the lower  
7       electrical load. We believe that the proposed  
8       power plant would be a little less likely to want  
9       to produce very high power loads at that time of  
10      day, just because it is a time of day where the  
11      market price of power, as we've had, has been a  
12      little bit lower.

13             MR. ABELSON: You said a little less  
14      likely. In your experience, would it be that they  
15      would primarily want to run it full out, or  
16      primarily would not want to run it full out at  
17      that hour?

18             MR. SCHOONMAKER: My belief is that they  
19      would primarily not want to run it full out at  
20      that hour of the morning. At least that's my  
21      experience at other power plants where I've worked  
22      at. With the market being what it is today, it's  
23      a little harder to predict.

24             MR. ABELSON: All right, well, now I  
25      want to turn to a question that the Commissioners



1       were asking a few minutes ago, because it's  
2       important and we have tried to address it.

3               MR. SMITH:   Excuse me, Mr. Abelson, just  
4       one question.

5               MR. ABELSON:   Yes.

6               MR. SMITH:   The 150 million gallons,  
7       that would service just the new combined cycle  
8       units; that does not include cooling --

9               MR. SCHOONMAKER:   That's correct, and in  
10       this alternative we've only looked at the Hyperion  
11       water flow for the proposed new units or the  
12       single steam condenser.   Yes, sir, we're ignoring  
13       units 3 and 4 all together in this alternative  
14       option.

15              MR. ABELSON:   I'd like to move, Mr.  
16       Schoonmaker, if I could, to the issue of  
17       reliability that was raised a little while ago.  
18       And ask you, under this wastewater alternative, if  
19       it turned out that there actually was an extended  
20       emergency, an emergency condition such as an  
21       earthquake which broke the line between Hyperion  
22       and the power plant, for example; or perhaps an  
23       emergency like an extended drought and heat spell  
24       where the amount of water coming into the plant  
25       was reduced because people were conserving, or the

1 amount of demand was extremely high in the early  
2 morning hours because it was quite hot, and this  
3 was going on for some period of time.

4 Is there any way, under those  
5 circumstances, -- and can we bring up the next  
6 slide, Todd, please -- is there any way under  
7 those circumstances that basically the wastewater  
8 alternative could still be feasible?

9 MR. SCHOONMAKER: Yes, sir. Applicant  
10 suggested in their testimony that there might be a  
11 potential of using ocean water in a backup way so  
12 that if we had, for whatever reason, a lack of  
13 sufficient quantity of Hyperion water, we might  
14 use ocean water as a backup.

15 I've envisioned a plan here that would  
16 do that. You might recognize this pretty much  
17 from where we were before. We have the proposed  
18 option where we would pump water from Hyperion  
19 into the El Segundo forebay; go through the  
20 condenser; and then back to Hyperion for discharge  
21 at five-mile.

22 Now what I'm talking about now is in the  
23 event of an inadequacy of this supply for  
24 emergency reasons or whatever reasons the  
25 Commission decided was appropriate, we could take

1 water from the existing intake structure, which  
2 I've indicated here, which already is piped to go  
3 into the forebay.

4 And water from that forebay then would  
5 be salt water instead of wastewater, but it would  
6 be pumped through the power plant condenser, as  
7 before. And then discharged either back to the  
8 Hyperion or to the existing outfall.

9 And I'm sorry, I'm not able to determine  
10 which one would be the most appropriate. It takes  
11 a little bit more analysis.

12 MR. ABELSON: So, in summary, when the  
13 applicant suggests that they're going to need a  
14 billion gallons of water a day, or that they're  
15 going to need dozens or at least half-dozens of  
16 large pipes in order to move that billion gallons,  
17 have they, in your opinion, created a reasonable  
18 scenario, or have they created a strawman?

19 MR. SCHOONMAKER: I won't talk about  
20 strawman creations so much, but I will say that I  
21 think the applicant's assumption of a 20 degree  
22 rise on deep water temperatures which are colder  
23 than the surface temperatures would result in an  
24 unreasonably large and I even admit, impractical  
25 application.

1           If you had to use a 20 degree rise  
2       compared to the deep water temperature which is  
3       reported to be 50, 55 degrees, then that, indeed,  
4       would be for many months of the year a lower  
5       temperature than the input to the Hyperion Plant.

6           So I would agree with the applicant that  
7       obviously is impractical.

8           Where I believe we have a substantial  
9       difference with the applicant is I don't believe  
10      that the criteria that we use, that is the 23 rise  
11      in receiving waters, is the only potential  
12      permitting criteria.

13          And using the permitting criteria that  
14      I've used, which we discussed, then we can achieve  
15      a practical result, not the impractical result  
16      that comes from using the other criteria.

17          MR. ABELSON: All right, at this  
18      juncture I'd like to ask Mr. York, because we're  
19      very near the end of our presentation, before  
20      ending this direct, Mr. York, other than avoiding  
21      impacts all together through the reclaimed  
22      wastewater alternative, is there any other  
23      appropriate way from staff's perspective that this  
24      plant could be certified prior to completion of a  
25      proper site-specific 316B-like entrainment study,

1 or as an alternative, doing the reclaimed  
2 wastewater? Is there any other choices that we  
3 have available, and I'd ask that the next slide be  
4 brought up on the --

5 MR. YORK: Yes, staff has one other  
6 approach that would allow certification while  
7 still satisfying the law. And we call it the  
8 three-legged stool option.

9 MR. ABELSON: Can you explain what the  
10 first leg of the stool would consist of in this  
11 fully mitigated option?

12 MR. YORK: The first leg, to satisfy  
13 CEQA, staff finds that there is an obligation to  
14 preserve the status quo ante, and to not make  
15 conditions worse.

16 This can be achieved by posing a  
17 facility-wide monthly cap for every month of the  
18 year using the preexisting five-year data for  
19 intakes 2 and the current zero volumes for intake  
20 1, as reflected in the following table.

21 MR. ABELSON: And do we want this  
22 monthly cap every month because we concluded that  
23 the fish are out there spawning at least year-  
24 round?

25 MR. YORK: Yeah, the monthly cap is

1 actually necessary because the fish do spawn all  
2 year.

3 MR. ABELSON: All right. Calling your  
4 attention to the second leg of the stool, can you  
5 describe what this leg is about?

6 MR. YORK: The second leg is doing a  
7 316B-like study. Even if conditions are  
8 maintained through the monthly cap, California law  
9 still requires that marine resources be restored  
10 and enhanced to the extent feasible for projects  
11 in the coastal zone.

12 Unless the applicant uses the wastewater  
13 alternative a scientifically sound, site-specific  
14 entrainment study is needed to determine what  
15 needs to be restored and enhanced.

16 MR. ABELSON: Could this study that  
17 you're talking about be properly done from a  
18 scientific perspective after licensing, after  
19 certification, but before commencement of plant  
20 operations? And could you explain that answer?

21 MR. YORK: Yes, the study can be done  
22 while the project's not operating. However, it is  
23 necessary for the study to be done, completed and  
24 mitigation imposed before the plant is allowed to  
25 commence commercial operation.

1           MR. ABELSON: I'd like you to drop back,  
2     if you could, and if Dr. Davis needs to assist you  
3     on this, please feel free to refer to her, but  
4     when you say that the study can be done without  
5     the plant operating, that seems counterintuitive.  
6     Don't you need the entrainment to find out what  
7     the scope of the problem is?

8           MR. YORK: Well, we've determined that  
9     in talking to our experts, our panel of experts  
10    that the power plant does not need to be operating  
11    to do this study. In fact, that was the decision  
12    that was made for the Huntington Beach project,  
13    which will soon begin its 316B study.

14          MR. ABELSON: So what's needed is to go  
15    to the site, but the site doesn't have to actually  
16    be entraining?

17          MR. YORK: Right, you have to go to the  
18    right site, -- location of the intake.

19          MR. ABELSON: All right. Now, let me  
20    ask you, if you can, to go on to the very  
21    important third leg of the fully feasibly  
22    mitigated option and explain what that is about.

23          MR. YORK: Capping the project and doing  
24    the study, alone, will give you nothing to restore  
25    and enhance the marine resources to the extent

1 feasible.

2 In the absence of a technical fix such  
3 as dry cooling or reclaimed water, restoration  
4 enhancement will have to be achieved through  
5 offsite mitigation which will cost a lot of money.  
6 That money must be put into a trust account to be  
7 overseen by the Energy Commission to assure its  
8 amount and availability as a condition of  
9 certification.

10 MR. ABELSON: Well, the applicant, Mr.  
11 York, has proposed a \$1 million enhancement, I  
12 believe they sometimes refer to it as a fund.  
13 Would this restore and enhance marine resources to  
14 the fullest extent feasible? And if not, what  
15 would?

16 MR. YORK: Based upon our expertise on  
17 other cases, \$1 million is nowhere near close to  
18 the amount feasible for applicant to expend on  
19 cooling water related matters.

20 In Moss Landing the applicant feasibly  
21 expended nearly \$70 million on its cooling water  
22 system. And in the Morro Bay project the  
23 applicant claims that it feasibly will expend \$35  
24 million or more on its cooling water related  
25 systems.



1           MR. ABELSON: I don't want there to be  
2 any confusion about that last answer, so let me  
3 ask you two other questions. When you sought \$70  
4 million for Moss Landing, and \$35 million for  
5 Morro Bay, is that the amount that was spent on  
6 offsite mitigation, or is that the amount that was  
7 feasibly spent, according to the applicant, on  
8 their cooling systems?

9           MR. YORK: That's the amount feasibly,  
10 to be or has been, expended by the applicant. And  
11 that was feasible for both of them to expend that  
12 amount of money. That's not just the offsite  
13 mitigation dollars. Those dollars were included  
14 in those totals.

15          MR. ABELSON: So, could we pull up the -  
16 - I'm sorry --

17          HEARING OFFICER SHEAN: Can we get the  
18 witness to clarify that. So, --

19          CHAIRMAN KEESE: Let me ask --

20          HEARING OFFICER SHEAN: Sure.

21          CHAIRMAN KEESE: -- feasible, do you  
22 mean feasible meaning how much could they pay and  
23 still make this project economic?

24          MR. YORK: Yes.

25          CHAIRMAN KEESE: That's your sole

1 criteria? Figure out at what point, and if the  
2 applicant could spend \$100 million, and still be  
3 economic, they should spend that on enhancement of  
4 the --

5 MR. YORK: Yes. The difficulty is we  
6 don't have a site-specific study to know exactly  
7 what the impacts are. And that would give us the  
8 information so we could be a lot more precise in  
9 the amount that we would suggest for the  
10 mitigation portion, the offsite habitat mitigation  
11 portion of the total.

12 MR. ABELSON: Mr. York, on that last  
13 one, just one further clarification if I could, if  
14 the money were determined to be the amount  
15 feasible, as Commissioner Keese has just  
16 described, and that were put into a trust fund,  
17 leg two requires a study to be done beginning  
18 fairly soon, I take it, is that correct?

19 MR. YORK: That's correct.

20 MR. ABELSON: If the study was completed  
21 and determined that the amount of dollars needed  
22 to offset the impact with something less than the  
23 amount in the trust fund, would the applicant  
24 still be stuck for the difference, or would they  
25 get a rebate?

1 MR. YORK: They would get a rebate.

2 MR. ABELSON: All right. In summary,  
3 then, can we bring up the next slide or two --

4 HEARING OFFICER SHEAN: Let me interrupt  
5 you just for a second.

6 MR. ABELSON: Yes.

7 HEARING OFFICER SHEAN: With regard to  
8 the first leg, the monthly caps, first of all if  
9 I'm understanding your testimony, you are capping  
10 units 1 and 2 at zero, is that correct?

11 MR. ABELSON: That's -- in fact, would  
12 you bring up the very next chart. Yes, that's  
13 correct, --

14 HEARING OFFICER SHEAN: Fine. You're  
15 testifying, Mr. Abelson. Mr. York, --

16 MR. YORK: This is the graph that you  
17 saw earlier in the day, and this is the flow cap  
18 regime we're recommending.

19 HEARING OFFICER SHEAN: So that -- and  
20 do I understand further that the monthly cap,  
21 then, is based upon the flow data, what you would  
22 show under number two there, the averages for  
23 units 3 and 4?

24 MR. YORK: Yes, that's correct.

25 HEARING OFFICER SHEAN: Okay. So this

1 is not being directly related to any of the  
2 spawning habits of the fish that you find in the  
3 habitat, is that correct? The flow cap?

4 DR. DAVIS: I guess I should answer that  
5 one. The point is we're trying to basically  
6 maintain the existing condition under CEQA. We're  
7 not saying that there wouldn't still be harm to  
8 some fish species. What we're saying is that if  
9 you mirrored the baseline under CEQA you would  
10 cause no further harm than the baseline.

11 CHAIRMAN KEESE: Just help me with the  
12 first numbers. You go from 7600 in January to  
13 4200 in February, with a little more generation --  
14 a higher daily intake, and a lower monthly. Can  
15 you explain that to me?

16 DR. DAVIS: Higher daily and a lower --

17 CHAIRMAN KEESE: I looked at 246 in  
18 January and 255 in February, and then when I go to  
19 the monthly it goes from 7600 to 4200. What  
20 factor did you -- I mean, what other factor did  
21 you factor in?

22 DR. DAVIS: That may be a typo there  
23 because there should be a relationship between the  
24 total monthly flow and the daily average. So the  
25 other probably should be 72 --

1 MR. YORK: Yeah, this one here looks to  
2 be an anomaly, and --

3 DR. DAVIS: Yeah.

4 MR. YORK: -- we'll need to double check  
5 on that.

6 DR. DAVIS: Yeah.

7 HEARING OFFICER SHEAN: All right, just  
8 so I can get a yes or no answer, there is no  
9 correspondence in this proposal of the stool on  
10 the monthly flow caps between the flow limit and  
11 the spawning activity that has been produced in  
12 the remainder of your team's testimony?

13 DR. DAVIS: Well, the point that Dr.  
14 Cailliet was trying to make is that certain  
15 different fish species spawn at certain times. So  
16 whenever you take water you're going to hurt some  
17 fish species.

18 The point is that we're not saying that  
19 this proposed flow plan would not hurt some  
20 species of fish; we're saying that because it  
21 mirrors the baseline under CEQA it would do no  
22 worse harm than the existing condition.

23 HEARING OFFICER SHEAN: And if that  
24 baseline were a different baseline, such that  
25 under the row shown as number one, that baseline

1 was the flows for units 1 and 2 prior to January  
2 2003, your opinion then becomes that there would  
3 be a significant adverse entrainment impact, is  
4 that correct?

5 DR. DAVIS: That's correct, because in  
6 our opinion, since units 1 and 2 can no longer  
7 operate, that is the existing baseline, and that's  
8 the existing condition.

9 HEARING OFFICER SHEAN: And is your  
10 opinion that there would be a significant adverse  
11 impact if row number one were the pre-January 2003  
12 flow rates, it is that that opinion that there is  
13 a significant impact is based upon the existence  
14 of spawning behavior year-round, is that correct?

15 DR. DAVIS: Well, there would be an  
16 impact that was worse than the existing condition.  
17 How significant it is, on a project-specific  
18 basis, we don't know because we don't have any  
19 data. It would probably be significant  
20 cumulatively because so many of these fish species  
21 are highly stressed from a variety of impacts, and  
22 it would be adding to those.

23 HEARING OFFICER SHEAN: Why isn't what  
24 you've just testified to susceptible to the  
25 following interpretation: That when the applicant

1 proposes a flow cap of what we'll call the pre-  
2 January 2003 data, there are significant  
3 entrainment impacts due to the annual spawning  
4 habits of the fish in the area, whereas when the  
5 staff proposes a monthly flow cap that is not  
6 related, there are no significant impacts and it's  
7 not related to the spawning activity year-round?

8 DR. DAVIS: Well, we didn't say that  
9 there were project-specific significant impacts.  
10 What we said was that we don't know. What we're  
11 saying is that -- I believe that there's at least  
12 significant cumulative impacts by withdrawing any  
13 of these volumes of water from the Bay.

14 The question is under CEQA whether  
15 you're having worse impacts than the existing  
16 condition. And since we believe that the existing  
17 condition is zero now for intake one, if you  
18 withdraw more water than what's on this chart, you  
19 would be making the condition worse under CEQA.

20 HEARING OFFICER SHEAN: Did I just hear  
21 you testify that your team has not asserted that  
22 there will be direct project-related --

23 DR. DAVIS: Yes. Absolutely, and I just  
24 repeated that. We do not know if there are direct  
25 project-related significant impacts. But we do

1 know that there are impacts. I mean if you  
2 withdraw any water that has fish larvae and other  
3 organisms in it, there's an adverse impact.

4 So what we're saying is that if you  
5 withdraw more water than the baseline you will be  
6 having an adverse impact. We don't know if it's  
7 significant, just in terms of a project-specific  
8 impact or not, because we don't have that  
9 information.

10 HEARING OFFICER SHEAN: I need to find  
11 something in my notes here.

12 (Pause.)

13 HEARING OFFICER SHEAN: Okay, I'd like  
14 you to refer to your FSA section page 4.2-28. In  
15 the middle of the page under the heading "C.  
16 Direct Impingement Impacts" and -- I'm sorry,  
17 stand by.

18 PRESIDING MEMBER PERNELL: Say that  
19 again?

20 HEARING OFFICER SHEAN: It was 4.2- --

21 DR. DAVIS: I think I see. For the  
22 reasons stated below, impingement from the  
23 proposed ESGS project --

24 PRESIDING MEMBER PERNELL: 4.2?

25 DR. DAVIS: Is that where you are?



1 Right under C?

2 HEARING OFFICER SHEAN: Yes, um-hum.

3 DR. DAVIS: Direct impingement?

4 HEARING OFFICER SHEAN: That's

5 impingement, hang on.

6 (Pause.)

7 DR. DAVIS: That paragraph right above

8 it?

9 HEARING OFFICER SHEAN: Sure, I guess --

10 MR. McKINSEY: There's something I want

11 to point out because I discovered this the other

12 day. The electronic version of this document has

13 a different pagination for some reason than the

14 hard copy version. And I discovered this when I

15 had a witness on the phone and I asked him what

16 something said, he said it doesn't say that on

17 that page. And I said, wait a minute.

18 So, it might help if we actually know

19 like the text or the location.

20 HEARING OFFICER SHEAN: Okay. Yes, and

21 let me back up here just a second.

22 CHAIRMAN KEESE: I have a question

23 regarding that last point we talked about. Let me

24 just ask, because it seemed to me in your

25 presentation of this structure, this artificial

1 reef under the water in a sandy area, that what  
2 you've done is that you've enhanced the production  
3 of fish by bringing them in.

4 DR. DAVIS: Yes, probably yes.

5 CHAIRMAN KEESE: So it could be that  
6 versus the -- I forget whether it was two or five  
7 pounds that are being impinged each day? We might  
8 be reading more than two or five pounds? I mean  
9 is that something that would be taken into  
10 consideration in an analysis?

11 DR. DAVIS: Well, that's correct. And  
12 that's what we're worried about, what we're  
13 particularly worried about is the entrainment  
14 impacts, the --

15 CHAIRMAN KEESE: I understand, but I did  
16 see there the specific language saying the  
17 impingement would be significant.

18 DR. DAVIS: No, what we said was for the  
19 reasons stated below impingement from the proposed  
20 ESGS project will add direct, potentially  
21 significant -- it probably should have said will  
22 add to a direct, potentially significant adverse  
23 impact.

24 CHAIRMAN KEESE: Do you -- and I'm going  
25 to ask this with respect to warm water, too, --

1 DR. DAVIS: Yeah.

2 CHAIRMAN KEESE: -- do you look at the  
3 benefits of having created the artificial reef,  
4 when you look at what's impinged? Do you offset  
5 those two?

6 DR. DAVIS: We haven't done that. There  
7 have been a lot of studies on whether artificial  
8 reefs actually increase fish production. And my  
9 understanding, now maybe somebody else knows this,  
10 is that they've been inconclusive. I don't know  
11 if anybody has ever determined for sure --

12 CHAIRMAN KEESE: Well, I'm just  
13 asking -- and with warm water, is warm water a  
14 negative, or does it -- could it breed better  
15 populations?

16 DR. DAVIS: Well, it depends on which  
17 fish species. Some fish species are attracted to  
18 warm water, and some fish species avoid it.

19 CHAIRMAN KEESE: So it's not necessarily  
20 a negative. You have to look at it and make a  
21 determination, is that -- I mean, I see us  
22 adopting a standard of 20 delta. I mean is it  
23 just that's it, or do we take a guess and pick  
24 something?

25 DR. DAVIS: Oh, for where the 20 degrees

1 in the thermal plan came from? Is that what  
2 you're asking me?

3 CHAIRMAN KEESE: Well, I'm asking two  
4 general questions here. As far as permanent  
5 structures, do you look at the benefits and the  
6 negatives? And as far as warm water, are there  
7 benefits? And all I've heard is negatives here.

8 DR. DAVIS: Well, there are benefits to  
9 artificial reefs. But it's unlikely that the  
10 artificial reef benefits would probably out-weigh  
11 the loss of all those larvae. Although we don't  
12 know, you know, exactly what --

13 CHAIRMAN KEESE: So entrainment could be  
14 the bad part; impingement might be a break even?  
15 I guess my third question, because I heard the --  
16 you got to study it. It would seem to me you  
17 probably wouldn't study it right at the site of  
18 the intake, because that's artificial. You'd  
19 study it a couple hundred yards away when it's not  
20 operating or something?

21 DR. DAVIS: Well, when you do the study  
22 you study the volume of larvae in the vicinity of  
23 the intake, and you also study the volume of  
24 water, I mean the volume of larvae, you know,  
25 basically in the source water.

1           CHAIRMAN KEESE:  The source water that  
2           would have been there had you not had the  
3           artificial reef and intakes?

4           DR. DAVIS:  Yes.  Or, you know, --

5           CHAIRMAN KEESE:  And it would just seem  
6           to me that that was --

7           DR. DAVIS:  Yes.

8           CHAIRMAN KEESE:  -- what you would  
9           study.

10          DR. DAVIS:  Yes.  Basically, yes.

11          CHAIRMAN KEESE:  Thank you.

12          HEARING OFFICER SHEAN:  Just so I can  
13          get this.

14          DR. DAVIS:  Okay.

15          HEARING OFFICER SHEAN:  And let me go  
16          to, as published, page 4.2-16 of the staff's FSA.  
17          Under B, which is direct entrainment studies, I  
18          just want to get a clarification here.

19                 It says, "For the reasons stated below,  
20          staff concludes direct entrainment impacts  
21          resulting from once-through cooling of the  
22          proposed ESGS project will be adverse to marine  
23          organisms and may cause significant adverse  
24          impacts."

25          So that when you differentiate in this

1 sentence, apparently, between adverse impacts and  
2 significant adverse impacts, is that --

3 DR. DAVIS: Well, what we said in that  
4 sentence is that the impacts of entrainment are  
5 definitely adverse. There's no good that comes of  
6 it to marine organisms. There's certainly harm.

7 We don't know if they're significant or  
8 not. They may be. That's why we need the study.

9 HEARING OFFICER SHEAN: And that's why  
10 you then want at least, or have historically  
11 wanted the 315B-like study to be performed?

12 DR. DAVIS: That's correct.

13 HEARING OFFICER SHEAN: Is that correct?

14 DR. DAVIS: That's correct. So that we  
15 can determine what those impacts are, and whether  
16 they need to be mitigated.

17 HEARING OFFICER SHEAN: And that 316B  
18 study or like-study could find either that there  
19 were or were not significant impacts?

20 DR. DAVIS: That's correct. And in  
21 terms to get back to the flow cap, if the study  
22 were done and we had a better understanding of  
23 what the impacts were, then it's possible that  
24 after the study there could be a change in the  
25 allowed flow.

1           HEARING OFFICER SHEAN:  What's the  
2       measure of significant under these circumstances  
3       for entrainment impacts?

4           DR. DAVIS:  Well, you would have to look  
5       at each of the fish species that was entrained and  
6       determine what the proportion was of the fish  
7       species that were entrained, compared to the  
8       proportion in the source water.  And then you  
9       basically would have to look at the relative  
10      health of that species.  I mean I can't give you  
11      one number.

12           In the old 316B studies they used 5  
13      percent.  And probably almost certainly would be  
14      significant.  But there may be some of these  
15      species that are really declining like some of the  
16      rockfish where a take of less than 5 percent would  
17      be significant.

18           I mean you'd really have to do it on a  
19      species-by-species basis.

20           HEARING OFFICER SHEAN:  And so would it  
21      be -- if this is a percentage type analysis, would  
22      any percentage -- let me just use a hypothetical,  
23      if you found that most of what you had was the  
24      species that were being taken using the old model  
25      was an impact of less than 5 percent, but you

1       could find any species that it was greater than or  
2       materially greater than 5 percent, would that one  
3       species control the total issue of significance?

4               DR. DAVIS: Well, it would, but it would  
5       also really direct the mitigation. If you knew  
6       that there was only one species that you were  
7       affecting, then you would know basically what  
8       species you would need to do something to offset  
9       that impact for.

10              HEARING OFFICER SHEAN: And that offset  
11       might be what type of mitigation?

12              DR. DAVIS: Well, like let's say it was  
13       California halibut, which is a species that's been  
14       in trouble in southern California. California  
15       halibut use shallow bays as nursery areas. Maybe  
16       some kind of increase in tidal flow in a protected  
17       area would basically improve the survival of  
18       juvenile halibut.

19              HEARING OFFICER SHEAN: Would it be your  
20       opinion that there's any once-through cooling  
21       system that is for a power plant facility of the  
22       size that we're talking about that would not have  
23       significant and adverse impacts, entrainment  
24       impacts?

25              DR. DAVIS: There's none that would not



1 have adverse impacts. There may be some that  
2 might not have significant impacts. Only a few of  
3 these power plants have been studied using the  
4 modern methods. And in all of those cases they  
5 have found significant impacts. But it's only a  
6 handful of studies.

7 It's possible in some of these power  
8 plants when they do the studies they will find out  
9 that the impacts are really small.

10 HEARING OFFICER SHEAN: The materials  
11 submitted by Santa Monica Baykeeper and Heal The  
12 Bay suggest that that number is zero. Do you  
13 agree with that?

14 DR. DAVIS: That what number is zero?

15 HEARING OFFICER SHEAN: The number of  
16 major power plants that don't produce significant  
17 entrainment impacts through once-through cooling.  
18 That basically there are none. Do you agree with  
19 that?

20 DR. DAVIS: On a site-specific basis I  
21 don't know. What I do know is that most, if not  
22 all, of the studies that have been done so far  
23 have found significant impacts. And I would say,  
24 given the number of fish species that have been  
25 declining in recent years in southern California

1       that certainly cumulatively that you're adding a  
2       stress.

3               But on a site-specific, I don't know on  
4       a site-specific basis whether there are some power  
5       plants that don't have significant impacts. There  
6       may be.

7               HEARING OFFICER SHEAN: Okay, back to  
8       you, Mr. Abelson.

9               MR. ABELSON: Thank you. We're actually  
10      at the point of wrapping up here. Can you go  
11      ahead to the next slide, thank you.

12              Mr. York, are there any recommended  
13      timetables for compliance with what we call the  
14      fully mitigated option that you spent some time  
15      describing, the three-legged stool? Are there  
16      specific timetables connected with that from  
17      staff's perspective?

18              MR. YORK: Yes, staff, we talked amongst  
19      ourselves about considerations that we would need  
20      to make for making sure these things are complied  
21      with, and we came up with these three proposed  
22      timeframes.

23              For the monthly flow cap we'd like to  
24      have that implemented immediately. Site-specific  
25      study, the study should be started within 90 days

1 of certification.

2 MR. ABELSON: How long would that study,  
3 in your estimate, take to complete?

4 MR. YORK: The studies take about one  
5 year. And take another two, three months, or  
6 maybe a little longer, to come up with a draft  
7 final, and then reviewed, and then a final report.  
8 So, 15, 16, 17 months maybe, for the whole --

9 MR. ABELSON: So if it were started as  
10 recommended within 90 days of certification, and  
11 assuming that it stayed on the schedule that is  
12 common for these sorts of studies, is it your  
13 belief that it would be completed and the  
14 information would be available before the actual  
15 start of operation in this case?

16 MR. YORK: I believe it would be.

17 PRESIDING MEMBER PERNELL: Are you  
18 talking about a 316B study?

19 MR. YORK: Yes.

20 MR. ABELSON: Yes. And is there another  
21 timeframe, as well?

22 MR. YORK: The establishment of the  
23 trust fund. We recommend that the funds, whatever  
24 is agreed to, they are provided within 90 days of  
25 certification.

1 MR. ABELSON: All right. And could we  
2 go ahead, Todd, and flip to the last slide in  
3 staff's presentation.

4 Would you summarize then for the  
5 Committee what options staff believes are  
6 appropriate and legal in this particular case?

7 MR. YORK: Staff proposes the following  
8 three options: The fully avoidance option is  
9 require the wastewater alternative. Option two,  
10 fully mitigated one, that's the three-legged stool  
11 option. Or option three, deny the project.

12 MR. ABELSON: And that completes our  
13 direct testimony. Thank you all for your  
14 patience.

15 HEARING OFFICER SHEAN: Thank you. May  
16 I ask a follow-up question here of the staff  
17 panel. I'm trying to understand here and let me  
18 refer to the December 18, 2002 letter to Mr. James  
19 Reede from the Santa Monica Baykeeper. It  
20 contains extensive material about potential  
21 impacts from once-through cooling.

22 And although the pages are not numbered,  
23 if you flip through to the fourth page, the top of  
24 it starts with the words "approximately 50 miles  
25 northwest of Del Ray Bay" --

1           MR. ABELSON: Do you want him to look at  
2           that?

3           HEARING OFFICER SHEAN: Yes, if you --  
4           Well, I'll just read it, and if you need to look  
5           at it, that's fine.

6           It discusses the impingement and  
7           entrainment at individual steam electric  
8           generating facilities such as the following: And  
9           it says, at the San Onofre Nuclear Generating  
10          Station on the southern California coast. In a  
11          normal non el nino year 110 tons of midwater fish  
12          are entrained and at least 41 percent are killed  
13          during plant passage. The fish killed include  
14          approximately 350,000 juveniles of white croaker,  
15          a popular sport fish, as well as northern anchovy  
16          and queenfish."

17          Does that sentence suggest that there is  
18          only a 41 percent mortality for the fish being  
19          passed through the cooling water system of San  
20          Onofre?

21          DR. DAVIS: They did a lot of studies of  
22          mortality in the original 316B studies. And it  
23          varied. But I know that for many fish species it  
24          was close to 100 percent. I don't know  
25          specifically what that statistic is based on. Do

1       you know, Pete?

2               HEARING OFFICER SHEAN:  In terms of --  
3       all right.

4               DR. RAIMONDI:  Yeah, I've worked on the  
5       SONGS Project a lot.  The assumption has always  
6       been for the purposes of estimating losses due to  
7       entrainment that the percentage -- that there's  
8       100 percent through-plant mortality.

9               There have been, as Noel acknowledged,  
10       there were some studies that indicated that there  
11       might be some survivorship of certain fish  
12       species, but they never followed them long enough  
13       in the ocean to know whether they just got  
14       immediately eaten or fell apart or whatever.

15               And so they've always assumed 100  
16       percent through-plant mortality.

17               HEARING OFFICER SHEAN:  Is there any  
18       value in the food chain to larvae that have been  
19       killed through entrainment?

20               DR. DAVIS:  There are some fish species  
21       that are detritus feeders, but those are different  
22       ones.  So basically it's changing the food chain.  
23       So, it is still organic matter, and it may have  
24       value to fishes that feed on detritus on the  
25       bottom, but it won't have value any more to

1 plankton feeding fishes.

2 DR. RAIMONDI: Can I comment on that,  
3 also?

4 HEARING OFFICER SHEAN: Yes.

5 DR. RAIMONDI: I think the major issue  
6 is that it changes the location of the benefit.  
7 And so what you've got is you've got a whole bunch  
8 of dead things coming out the end of the pipe.  
9 And what that does is it causes there to be a  
10 local change in community. As Noel said, you get  
11 detritivores, scavengers. You get a very changed  
12 community at the end of the pipe, at least in  
13 SONGS where there's a really big outfall.

14 And what it doesn't do, it doesn't allow  
15 for those larvae to grow and to, you know, to move  
16 through these areas and to service the other  
17 members that they would normally service.

18 And so it shifts the benefit to a very  
19 local benefit to a species that wouldn't normally  
20 be there, at least not in those densities. And  
21 away from the normal community that's out there.

22 MR. ABELSON: Mr. Shean, I am aware of  
23 one small scheduling problem, and I don't know if  
24 the Committee would be able or willing to try to  
25 accommodate this. Mr. Paznokas from Fish and Game

1 has gone to great pain trying to be here today.  
2 He's broken an ankle. He wasn't really able to  
3 drive, but he felt this was an important hearing  
4 and he wanted to be here.

5 He's told us in no uncertain terms that  
6 the pain is high enough that he's not going to be  
7 able to come back tomorrow. So I'm wondering if  
8 he might be allowed to make his comments?

9 HEARING OFFICER SHEAN: All right, let's  
10 just see where we are. Ordinarily we'd be going  
11 to the applicant for any cross from you.

12 MR. MCKINSEY: Well, we have a  
13 procedural question at this point. During Mr.  
14 Sapudar and Mr. Schoonmaker's testimony there was  
15 referral to a further study. And it was also  
16 mentioned in their rebuttal testimony, which they  
17 said they were conducting it, in which they were  
18 determining that the thermal effect of a discharge  
19 at the five-mile outfall was not physically  
20 reaching the three-mile point.

21 And I think also reference to a salinity  
22 condition that's preventing it from reaching the  
23 surface. That study is not in the record. It  
24 hasn't been tendered as evidence. And so we would  
25 object to any of that testimony unless that study



1 is tendered. And it would need to be tendered  
2 quickly so that we could evaluate it and have an  
3 attempt to cross-examine based on it.

4 MR. ABELSON: Can I ask Mr. Schoonmaker  
5 to tell us the status of that information, where  
6 it's at and what we're able to produce, if  
7 anything, at this point?

8 MR. SCHOONMAKER: That study was  
9 completed Saturday. And I had a letter report on  
10 that study directed to myself and to Mr. Reede,  
11 our Project Manager, by email. So we have an  
12 email copy of the letter report of that study.

13 MR. ABELSON: This is the MIT study?

14 MR. SCHOONMAKER: Yes, this was the  
15 study done by Professor Eric Adams at MIT. I  
16 don't see any reason why we couldn't present that  
17 into evidence.

18 MR. ABELSON: We certainly have no  
19 objection. The only question we didn't know was  
20 whether we would have it by the time the hearing.  
21 We've been doing everything we could. We did get  
22 it on Saturday evening.

23 MR. MCKINSEY: I'd like to see the  
24 letter. I don't know if the letter would be  
25 sufficient for us to feel that we were seeing the

1 study or not, but it would certainly -- I'd like  
2 to make an objection until we at least see the  
3 letter.

4 HEARING OFFICER SHEAN: All right, we'll  
5 allow you to carry the objection, and we'll deal  
6 with this and any potential motion to strike based  
7 upon this lack of availability as of either the  
8 22nd or the 10th of February.

9 We're going to go off the record for  
10 just a second here.

11 (Off the record.)

12 HEARING OFFICER SHEAN: And at this  
13 point we would like to accommodate our guest and  
14 friend from the California Department of Fish and  
15 Game.

16 MR. REEDE: Excuse me, Hearing Officer  
17 Shean, I don't think everybody's back yet.

18 HEARING OFFICER SHEAN: Whom do you want  
19 back?

20 (Parties speaking simultaneously.)

21 HEARING OFFICER SHEAN: Okay. All  
22 right. We're back on the record and we have some  
23 comments from the California Department of Fish  
24 and Game.

25 MR. PAZNOKAS: Good afternoon. I

1 appreciate you giving me the opportunity to put in  
2 some comments today. My name is Bill Paznokas.  
3 I'm with the California Department of Fish and  
4 Game. I'm a Staff Environmental Scientist for the  
5 Marine Region in the Department. I am the Water  
6 Quality Biologist for southern California, as well  
7 as the Marine and Bases Species Coordinator for  
8 the Department. I've been with the Department of  
9 Fish and Game for ten years. Prior to that I was  
10 with the Regional Board in San Diego for seven  
11 years.

12 We have submitted a letter dated June  
13 26, 2002, as our official written testimony. And  
14 so I will -- I'm here essentially to reaffirm that  
15 testimony and to indicate that the Department  
16 feels that a 316B-like study should be required  
17 for this facility.

18 And I'll go through a few points to  
19 justify that position. Your staff today has gone  
20 through and been very comprehensive in identifying  
21 the various issues related to biology.

22 One of the things that I'd like to re-  
23 emphasize deals with the decline of the fisheries  
24 in Santa Monica Bay. For the last 20 years  
25 there's been a market decline such that the

1 Department of Fish and Game's Commission has put  
2 restrictions on catches for various rockfish in  
3 the Santa Monica Bay area, as well as other areas.

4 And these include -- the decline include  
5 things as already mentioned, the croaker, surf  
6 perch, several different rockfish, white -- and so  
7 these species have been in decline and warrant  
8 some additional studies to determine impacts from  
9 the power plant.

10 The main --

11 CHAIRMAN KEESE: Can you qualify that  
12 for me?

13 MR. PAZNOKAS: Pardon me?

14 CHAIRMAN KEESE: You saw -- did you see  
15 the chart?

16 MR. PAZNOKAS: Yes.

17 CHAIRMAN KEESE: Showing the larval  
18 croaker density?

19 MR. PAZNOKAS: Correct.

20 CHAIRMAN KEESE: Is that --

21 MR. PAZNOKAS: In decline. In my  
22 opinion that shows that there is a decline.

23 CHAIRMAN KEESE: Is that -- I mean I see  
24 a decline from the number here, above 400, in '74  
25 to virtually zero in '95. Is that what's happened

1 to the -- you're talking about the take of fish,  
2 right?

3 MR. PAZNOKAS: The -- if --

4 CHAIRMAN KEESE: I mean is it down 50  
5 percent, 80 percent?

6 MR. PAZNOKAS: Well, according to this  
7 it's difficult to tell for the last few years  
8 because the scale is such that you can't really  
9 tell what those last four data points are.

10 But, according to this chart, it would  
11 show that the larval densities, at least in the  
12 King Harbor area, shows a significant decline such  
13 that --

14 CHAIRMAN KEESE: I see this. But I'm  
15 just asking you to put some numbers on what you  
16 just said. You said white croakers are down. Can  
17 you give me -- are they down 2 percent?

18 MR. PAZNOKAS: I don't have that data at  
19 this time.

20 CHAIRMAN KEESE: Or 90 percent?

21 MR. PAZNOKAS: Again, I don't have that  
22 particular data.

23 The next point I'd like to make, and our  
24 main point that we made in our comments previous  
25 is that there's no site-specific data for this

1 particular facility. And so I think it's critical  
2 that you have that kind of data and information so  
3 that you can make a determination of whether or  
4 not there are impacts.

5 Now, there's been discussion today as to  
6 whether or not there are adverse impacts or  
7 significant impacts. I would agree with your  
8 staff's presentation with respect to adverse,  
9 because there is a given assumption that there's  
10 100 percent mortality from an entrainment issue  
11 from organisms that go through the plant.

12 Whether or not it's significant is the  
13 reason for the study. We don't know. We don't  
14 have the data. So it's the Department's position  
15 that in order to get that information, the 316B-  
16 like study, it would be appropriate.

17 Some other points to justify re-doing  
18 the studies. There's been talk -- or the  
19 applicant has submitted information that there's  
20 adequate studies already to determine impingement  
21 and entrainment effects. Some of the points that  
22 your staff has already made and we concur with  
23 deal with the type of models and technology to  
24 determine those impacts have improved  
25 significantly. As well as the ability to identify

1 certain species. So that the ability to do the  
2 taxonomy and to determine the various species in  
3 the studies is much greater now.

4 Another point has been made that the  
5 recent studies at other facilities, Moss Landing,  
6 Morro Bay, Diablo and so forth, utilized the  
7 existing studies to show no impacts; but then the  
8 recent studies that they've had to do have indeed  
9 shown an impact. So, I think that is another  
10 point for justification in having them re-doing a  
11 316B-like study.

12 So, in conclusion, our position has not  
13 changed from our June of 2002 letter, in that we  
14 believe it would be appropriate for the facility  
15 to have to do a 316B-like study.

16 That concludes my comments. I can be  
17 available for cross tomorrow by phone if that  
18 makes people feel more comfortable.

19 MR. MCKINSEY: I don't think I'd be very  
20 comfortable cross-examining a man with a broken  
21 ankle.

22 (Laughter.)

23 MR. MCKINSEY: I would like to ask a  
24 question if I could do it now, though, just as  
25 easily.

1 CHAIRMAN KEESE: May I ask one question?

2 HEARING OFFICER SHEAN: Sure.

3 PRESIDING MEMBER PERNELL: And I have  
4 one.

5 CHAIRMAN KEESE: You know, one of the  
6 things that's going to come up here,  
7 unfortunately, I am going to be chairing a  
8 Commission Meeting tomorrow and not going to be  
9 here for the cross-examination.

10 But help me out. The NPDES permit --

11 MR. PAZNOKAS: Yes.

12 CHAIRMAN KEESE: -- old, which found no  
13 significant impact?

14 MR. PAZNOKAS: Based on the old studies.

15 CHAIRMAN KEESE: Okay, and so you  
16 discard that, or we should ignore that?

17 MR. PAZNOKAS: Again, the compliance  
18 with the NPDES permit, with respect to 316B, is  
19 based on those old studies. Our --

20 CHAIRMAN KEESE: Yes, yet --

21 MR. PAZNOKAS: -- our position is that  
22 those studies do not adequately answer the  
23 question of whether or not there's significant  
24 impacts at this plant from impingement/  
25 entrainment. So, --



1           CHAIRMAN KEESE: But the decision was  
2 not that long ago. I mean the --

3           MR. PAZNOKAS: It was 2000, I believe.

4           CHAIRMAN KEESE: The study was awhile  
5 back.

6           MR. PAZNOKAS: Correct.

7           CHAIRMAN KEESE: Okay, but as a sister  
8 agency you don't give deference to that?

9           MR. PAZNOKAS: Our position, dealing  
10 with this particular issue, is that the applicant  
11 should have to do a 316B-like study. The NPDES  
12 permit is a different issue. And I'm not an  
13 expert on either CEQA nor NPDES permits, so I'd  
14 have to defer to the folks as they've already  
15 answered those questions.

16          CHAIRMAN KEESE: Okay. And as far as  
17 the analogy to Moss Landing and Morro Bay and  
18 this, are we talking about the same marine  
19 environment? The same ocean environment?

20          MR. PAZNOKAS: No, we're talking about  
21 the same kind of studies, though. So the studies  
22 that would be done at this particular facility  
23 would be the same kind of studies to address  
24 impingement/entrainment issues.

25          The issues were the same, though the

1 environments are different, just because of  
2 location.

3 CHAIRMAN KEESE: Thank you.

4 HEARING OFFICER SHEAN: Yeah, go ahead.

5 MR. SMITH: Just one quick question. On  
6 the 316B-like study, if that's conducted when the  
7 plant is not operating, just mechanically walk me  
8 through it so I'm clear, what happens? How do you  
9 conduct a 316B-like study?

10 MR. PAZNOKAS: The study addresses  
11 impingement/entrainment.

12 MR. SMITH: Correct.

13 MR. PAZNOKAS: And the methodologies and  
14 protocols and technology to do that are pretty  
15 well established now, based on these other  
16 studies. So, I think you're referring to the zero  
17 flow rate, is that what we're talking about?

18 MR. SMITH: Staff testified earlier that  
19 their experts said a 316B-like study could be done  
20 when the plant is not operating. So,  
21 mechanically, can someone explain how it's done  
22 when the plant is not on?

23 MR. PAZNOKAS: I can't do that. Maybe  
24 someone --

25 (Parties speaking simultaneously.)

1 DR. RAIMONDI: I can do that. You have  
2 to separate the impacts due to impingement from  
3 those due to entrainment. Entrainment, the way  
4 that you would sample this, almost certainly would  
5 be to sample the ichthyoplankton right in front of  
6 the riser, right in front of the intake. Because  
7 you wouldn't go inside it to sample.

8 What you would do is you would do the  
9 plankton test right in the immediate vicinity of  
10 it. That would give you a concentration of larvae  
11 that are immediately adjacent to the intake  
12 structure.

13 Then you'd use the engineering design  
14 standards that would tell you how much water was  
15 actually going to be taken into the plant under  
16 different operating conditions.

17 And that would give you the estimate of  
18 the number of individuals that were entrained.  
19 You'd do exactly the same thing if it was on or if  
20 it was off. You'd sample exactly the same way.

21 So you don't need to have it on. And,  
22 in fact, oftentimes you do it when it's off and  
23 then you project it to different levels that might  
24 be, you know, might be accomplished by different  
25 intake rates.

1           The source water population, you go out,  
2       you choose sites that would characterize the area  
3       that you think encompasses the source water body.  
4       And those are decisions that you bring in to  
5       biologists and oceanographers and try to  
6       standardize those sites that would be most  
7       representative of the source water body.

8           So, all this can be done not only when  
9       there's not operations, but before there's  
10      actually intake structure. And, in fact, that has  
11      been done in places.

12          And so impingement is a little bit  
13      different. Impingement, you're counting up the  
14      number of individuals that are actually lost to  
15      the screens, to the traveling screens. And so  
16      clearly you can't do that when the plant's not  
17      operating. But entrainment studies, you can.

18          MR. SMITH: And I just have another  
19      question on the -- going back to these tables.

20          HEARING OFFICER SHEAN: I'm sorry, can I  
21      interrupt you for a second? And if you did that  
22      at El Segundo, following up the Chairman's  
23      question, is the fact that the current intake  
24      structure has a certain fish attractant quality to  
25      it skew the data you'd get if you were taking it

1 right there near?

2 DR. RAIMONDI: You wouldn't skew the  
3 data. I mean if you mean skew in the sense that  
4 it would bias it in a way that was not  
5 representative of the real losses, I don't  
6 think -- in fact, I'm certain it wouldn't. If  
7 it's an attractant, if that area is an attractant  
8 that just makes it worse, you know, because it's  
9 drawing in larvae that are ultimately going to be  
10 sucked right down the pipe.

11 And so to the degree to which it  
12 attracts larvae, if at all, that's just going to  
13 cause the problem to be worse. And, in fact, you  
14 want to capture that attractant to it to actually  
15 characterize the true amount.

16 HEARING OFFICER SHEAN: Okay, and so  
17 then would the more remote data be less valid  
18 then?

19 DR. RAIMONDI: No, it wouldn't be less  
20 valid, because what you're trying to do in these  
21 studies, and I don't want to get very complicated  
22 here, is you're trying to estimate the fraction of  
23 the larvae that are at rest. And so you have to  
24 decide what that population is, that's what's  
25 called the source water body.

1           And for the purposes of argument today,  
2       it might change. We could say it's the -- and the  
3       proportion of those individuals that are at rest,  
4       that are actually lost due to the operation of the  
5       plant. And so you have to choose your locations  
6       on the Bay very carefully because you're trying to  
7       characterize the population of larvae out in the  
8       Bay, and then also characterize the number of  
9       those that are lost due to the intake structure,  
10      which is best estimated by sampling right at the  
11      intake structure. And then it's a simple  
12      division.

13           I mean it's not really, but that's the  
14      guts of it, is that simple division.

15           CHAIRMAN KEESE: And then giving credit  
16      for the benefit that this artificial reef does on  
17      raising the population, I would assume?

18           DR. RAIMONDI: No, and I'll tell you the  
19      reason not. I mean you would, but to the degree  
20      to which it would -- there's again two issues.  
21      There's the entrainment issues and the impingement  
22      issues.

23           The degree to which this structure, you  
24      know, although it is some artificial reef out  
25      there, actually would affect the numbers of larvae

1       that are -- inherent to the vast number, the vast  
2       amount of water, would be insignificantly small.  
3       You could calculate that, but it would be  
4       insignificantly small.

5               Impingement is a different issue. Now,  
6       you may actually be drawing in fish that are  
7       residing there because they're local. And that  
8       you could account for. And it might, you know, in  
9       some ways diminish the effect of impingement. It  
10      wouldn't get rid of it, but you could actually  
11      probably count it.

12             But for larval entrainment, when you're  
13      talking about the billions of water -- be  
14      insignificantly small.

15             MR. GARCIA: Well, I want to follow up  
16      on that, and I don't want to belabor the point  
17      that the Chairman raised, but it seems to me that  
18      if, you know, we accept the fact that the  
19      structure creates habitat for the fish, and larvae  
20      result from that habitat, then, you know, the  
21      appropriate scientific design would be to back out  
22      that contribution.

23             DR. RAIMONDI: And so, you know, I'm not  
24      disagreeing with you. I just know because of the  
25      studies that I've worked on, and the fecundity of

1 the fish that would be in the nearby area, that  
2 even if you did that -- we could do that, and if  
3 you guys wanted us to do that, we could build that  
4 into the design. That would be no issue  
5 whatsoever.

6 It would not affect estimates. I know  
7 that from the withdrawal rates of the water  
8 column. It might change it from 4.3 percent to  
9 4.299999 percent, you know, it would be that sort  
10 of level. But you could back it out.

11 PRESIDING MEMBER PERNELL: Question for  
12 Fish and Game here. Let me get back to a question  
13 for you. You said that there's a decrease in the  
14 Santa Monica Bay fish wildlife.

15 MR. PAZNOKAS: That is correct.

16 PRESIDING MEMBER PERNELL: And what's  
17 the cause of that? This plant is not running, you  
18 know, and if we take the plant off the table,  
19 what's causing the decrease in the marine life?

20 MR. PAZNOKAS: Well, there are several  
21 factors that I think come into play. One of them  
22 has been over-fishing that's been identified.  
23 Others have to do with inputs of additional  
24 pollutants from stormwater is a possibility.

25 You're asking for possibilities, what



1       could be. It could be cumulative effects from  
2       these power plants. Again, we don't have the data  
3       for this site-specific one, and again that's why  
4       we're asking for it.

5               So, that's a very difficult question to  
6       answer; it really is. I think it's a combination  
7       of all those things.

8               PRESIDING MEMBER PERNELL: How long has  
9       it been going on?

10              MR. PAZNOKAS: Oh, 30 years, 50 years,  
11       I'm not -- a long time.

12              PRESIDING MEMBER PERNELL: All right.  
13       And then the other one, my final question here is  
14       the 316B-like study, which we've learned can take  
15       anywhere from, I don't know, 13 to 15 months, so  
16       that will put us well into '04. And then we also  
17       learned that the feds are going to come out with  
18       another maybe model of the 316B study to be done  
19       in '05.

20              So will Fish and Wildlife, if you know  
21       this, grandfather in a 316B study now?

22              MR. PAZNOKAS: I can answer --

23              MR. REEDE: I can answer that.

24              MR. PAZNOKAS: -- answer part of that.

25              PRESIDING MEMBER PERNELL: Okay, well,

1 let me hear from Fish and Wildlife, Mr. Reede.

2 MR. PAZNOKAS: Okay, one, though the new  
3 regulations would be out of our purview, those are  
4 federal regulations and therefore they would have  
5 to meet those regulations. Whether or not the  
6 Department would find if the 316B study would be  
7 adequate to address those new requirements, I  
8 don't know, because we haven't seen the study, we  
9 haven't seen the data.

10 MR. REEDE: Excuse me, Commissioner  
11 Pernell. I received an email reply to that  
12 specific question from Deborah Nagel, who is the  
13 Project Manager for the new rules that will be  
14 coming out.

15 And I asked her if we required El  
16 Segundo to perform a 316B study at this time,  
17 would it be acceptable, under the new rules. In  
18 other words, would it be grandfathered in.

19 She said that yes, it would be  
20 acceptable because currently the existing rules  
21 apply, and that there may be a need for additional  
22 source data. But that as it stands right now, it  
23 is appropriate. And I will provide copies of the  
24 email to all the parties tomorrow morning.

25 PRESIDING MEMBER PERNELL: And so

1       this --

2               MR. REEDE:  But she said it is  
3       appropriate, and that any study done now would be  
4       grandfathered in.

5               PRESIDING MEMBER PERNELL:  And who is  
6       she?

7               MR. REEDE:  She's the Project Manager at  
8       the U.S. Environmental Protection Agency that's in  
9       charge of issuing the new rules for existing power  
10      plants.

11              MR. MCKINSEY:  Hearing Officer Shean,  
12      ESPII objects to this witness is not a witness;  
13      he's not been sworn in.  So at most this would be  
14      comments.

15              And he's referring to a letter which we  
16      have not seen, and it has not been produced into  
17      evidence.  And so, at most, I think you should  
18      give it the weight of it's a hearsay summary, at  
19      least a portion of the letter, and we may have a  
20      lot of different positions on that.

21              DR. DAVIS:  I can add to --

22              HEARING OFFICER SHEAN:  Okay, let -- do  
23      you want to respond to that, since there's an  
24      objection?

25              MR. ABELSON:  Sure.  I think that the

1 Commissioners are interested in information. I  
2 think we had some information we got two days ago.  
3 It's hearsay; our rules allow hearsay and it goes  
4 to the weight of it. We'll be happy to produce  
5 the information to show you what Mr. Reede said is  
6 correct, that's what's in the email. And that's  
7 my comment.

8 PRESIDING MEMBER PERNELL: I guess my  
9 question would be --

10 HEARING OFFICER SHEAN: Okay, as far  
11 as -- let me just rule and then we can --

12 PRESIDING MEMBER PERNELL: All right.

13 HEARING OFFICER SHEAN: We won't sustain  
14 as to the admissibility of Mr. Reede's statement.  
15 First of all, I believe he was previously sworn.  
16 And --

17 MR. REEDE: No, I was not, sir.

18 HEARING OFFICER SHEAN: You were not?  
19 Okay. And -- well, you had a whole crew there  
20 that was standing.

21 (Laughter.)

22 HEARING OFFICER SHEAN: And that it will  
23 just go to the weight of the statement.

24 MR. McKINSEY: Thank you.

25 PRESIDING MEMBER PERNELL: May I just

1 follow up, and I'm not trying to cross-examine  
2 anybody. I think you're correct, I'm seeking  
3 information here.

4 And that is I would be interested to  
5 know whether she's in a position to make that  
6 decision. Is it the Environmental Protection  
7 Secretary, or is it a staff person that is in  
8 charge of a project? And I need to know --

9 MR. REEDE: No, it's the Senior Division  
10 Manager specifically in charge of the new 316B  
11 criteria for existing power plants for the entire  
12 United States. She's high level.

13 PRESIDING MEMBER PERNELL: I understand  
14 that, but does she do a recommendation to somebody  
15 else and they make the policy decision? Or is she  
16 a policy decision making person?

17 MR. REEDE: Well, sir, I shouldn't argue  
18 that with you.

19 PRESIDING MEMBER PERNELL: Well, if you  
20 don't know, just say you don't know.

21 MR. McKINSEY: I'd like to actually  
22 offer some other insight into this, and that is  
23 that the decision as to whether or not a  
24 particular study could or could not be adopted  
25 would clearly rest in the hands of the Regional

1 Water Quality Control Board.

2 And would not -- she would be, at most,  
3 providing an interpretation of what she thinks the  
4 rule would thus specify. But the real decision  
5 would be in the hands of the Regional Water  
6 Quality Control Board, with their hands on a new  
7 regulation and they're being asked to make that  
8 type of decision.

9 And I think that decision could go any  
10 which direction.

11 MR. ABELSON: The only other light that  
12 I can shed on this issue at all, because we're in  
13 the realm of dealing with a regulation that has  
14 not been adopted. And as you, Commissioner,  
15 commented directly during one of our workshops  
16 that you participated in a couple months ago,  
17 we're not going to base a decision -- at least you  
18 indicated you weren't going to base a decision on  
19 a rule that didn't exist, and the parameters of  
20 which we don't know.

21 What we do know is that in the draft  
22 form there's an indication that there's going to  
23 have to be current or recent studies. And we can  
24 check this, and I'm happy to do that, but I  
25 believe the term recent is within the last three

1 years or five years, something like that.

2 And beyond that, you know, the point  
3 that's being made is correct, and we don't know  
4 the details.

5 PRESIDING MEMBER PERNELL: Thank you.

6 MR. SMITH: Just a curiosity. Staff  
7 presented in its testimony several graphs that  
8 showed densities of fish larvae -- larval  
9 densities over time, 1974 to 199--

10 And these charts were used in part to  
11 demonstrate that (inaudible) the health of the  
12 fish population in the Santa Monica Bay is  
13 deteriorating. And as shown in staff's graphs  
14 there's a line that's drawn representing  
15 (inaudible) curve.

16 In a number of these it just strikes me  
17 that that downward curve is heavily influenced by  
18 a couple of spikes in several years. Particularly  
19 1974 and 1978 period of time.

20 Did something happen in 1974 and 1978  
21 that created the enormous spikes in larval  
22 population, larval densities? Is there something  
23 that you're aware of --

24 (Parties speaking simultaneously.)

25 MR. PAZNOKAS: I'm going to defer to

1 your expert panel up here on that.

2 MR. SMITH: I mean if you removed some  
3 of these spikes that curve flattens out somewhat;  
4 somewhat perhaps dramatically in some of these.  
5 So I'm just curious what --

6 DR. DAVIS: Well, basically it's a  
7 statistically derived regression line that, you  
8 know, takes into account the variability and looks  
9 at the overall trend. So even though there's  
10 fluctuations, it basically looks at which way the  
11 data are going.

12 DR. CAILLIET: I can -- is it working?

13 (Parties speaking simultaneously.)

14 DR. CAILLIET: Yeah, these data were  
15 taken from the Vantuna Research Group which has  
16 been doing the work outside and inside of King  
17 Harbor. And the regression lines we didn't plot;  
18 those came from the URS report.

19 And I understand from Noel and many  
20 others, Dr. Davis, that they were done by Dr. Dan  
21 Pontella, who's been doing the work there.

22 And you're right, there were peaks in  
23 quite a few of these. In some cases there was one  
24 peak that was around 1975, '76, '77, that happened  
25 to be a very big recruitment year for a lot of



1 fishes come up the California current. And  
2 indeed, what's happened since then is those  
3 populations have declined.

4 But there's quite a few of these that  
5 have three or four or five peaks after that in the  
6 '80s that continue, but the net result at the end,  
7 toward the end of the '90s, is that they're all  
8 down close to almost zero.

9 MR. SMITH: I'm sorry, that was a big  
10 recruitment year?

11 DR. CAILLIET: Yes.

12 (Laughter.)

13 DR. CAILLIET: Okay, here's the process.

14 MR. SMITH: You're going to have to  
15 explain that.

16 UNIDENTIFIED SPEAKER: Uncle Sam wants  
17 you.

18 DR. CAILLIET: The fish --

19 (Laughter.)

20 DR. CAILLIET: I can make it easy. The  
21 fish reproduce.

22 PRESIDING MEMBER PERNELL: We want tuna.

23 DR. CAILLIET: They put out eggs. The  
24 eggs develop into larvae. The larvae develop into  
25 juveniles. And they settle out. That's generally

1 the way it works.

2 When those juveniles settle out  
3 somewhere, in this case it would be the bottom of  
4 Redondo Harbor -- King Harbor, or maybe the  
5 outfall and intake area, once they settle out  
6 they're called recruits.

7 So in other words it's the new year  
8 class coming in. And in '75, '76, '77 was a very  
9 big recruitment year for quite a few species.  
10 That was big for rockfish, as well.

11 But my second point was if you look at  
12 the second category, gobies. There were three  
13 peaks. One later in '80, one later in '86-87, but  
14 the net result is still downhill.

15 The queenfish definitely had a peak in  
16 '75, and then it was downhill, and there were a  
17 couple of smaller peaks in '84/85.

18 And the white croaker had a big peak in  
19 '75; then there was another one in '81/82; and  
20 another one in '88/89.

21 Sometimes those are due to big  
22 recruitment pulses -- is that okay to use that?  
23 Big pulses in larval -- juvenile settlement. And  
24 they may be related to oceanographic conditions.

25 DR. DAVIS: I mean it's really natural

1 for fish populations to fluctuate. I think the  
2 worry is that when you -- and some of these  
3 fluctuations are probably due to natural events,  
4 such as shifts in warm and cold water regime.

5 The problem or concern is that when you  
6 add all these human impacts due to these  
7 fluctuations of nature you may reach a point where  
8 the fish don't bounce back the next time the  
9 regime rolls their way.

10 HEARING OFFICER SHEAN: What's the  
11 nature of the human activity at King Harbor that  
12 might impact this data?

13 DR. DAVIS: There's a power plant, for  
14 one. There is certainly lots of fishing around  
15 the harbor. There's pollutants from all the  
16 boats. And I mean these graphs are probably, you  
17 know, representative of general trends in southern  
18 California that correlate quite well with other  
19 information such as the paper on impingement and  
20 power plants that Dr. Cailliet presented in his  
21 testimony.

22 PRESIDING MEMBER PERNELL: So you're  
23 saying that it's not because of any conservation  
24 efforts; it's just because of nature these peaks?

25 DR. DAVIS: Most likely.

1 DR. CAILLIET: That's certainly what I  
2 would say. There is a long-term -- there are two  
3 kinds of things that people have been looking at a  
4 lot lately. One is the el nino/la nina  
5 phenomenon, where there's two or three years where  
6 there's relatively warm water followed by cold  
7 water. And that can cause peaks or valleys  
8 depending on the species whether it's a warm water  
9 species or a cold water species.

10 And there also have been, there's  
11 another technical term but it's pretty  
12 straightforward. It's called a Pacific decadal  
13 oscillation. Pacific meaning it's in the Pacific;  
14 decadal means it happens on a scale of decades,  
15 10, 20, 30 years. And indeed, the sardines were  
16 very abundant during a warm water set of decades  
17 in the early 1900s until about 1950.

18 Around 1950 to around 1976 were  
19 relatively cold water years. And then from 1976  
20 until about three or four years ago, it was  
21 another warm water period. They call those  
22 regimes.

23 And there's several papers that I've  
24 cited today and that are in our report by Jeff  
25 Mosier who used to be at the National Marine

1 Fisheries Service. He's a larval fish expert for  
2 the National Marine Fisheries Service. Showing  
3 the peaks and valleys of certain species coincided  
4 with those decadal regime shifts.

5 So that's another explanation I don't  
6 think anybody brought up yet today.

7 HEARING OFFICER SHEAN: Okay, so let me  
8 just -- so is it appropriate to conclude from the  
9 graphs here though that you can have an increase  
10 in the larval density in an area that does have a  
11 power plant that uses once-through cooling, and  
12 that just fundamentally caused by -- well,  
13 notwithstanding the presence of the once-through  
14 cooling system, that you can have increases in  
15 larval density that are due to natural causes.  
16 And that if -- so is that correct? We get a nod  
17 here?

18 DR. CAILLIET: Yeah.

19 HEARING OFFICER SHEAN: Okay. And that  
20 I would assume then that the density of larvae per  
21 given volume of water was higher during these  
22 times that it's beginning to peak?

23 DR. CAILLIET: Yes.

24 HEARING OFFICER SHEAN: And so even  
25 though proportionally you were intaking more

1 larvae at that particular time, the greater  
2 density outside of that is what's causing this to  
3 peak further? Or actually show the peak in the  
4 graph?

5 DR. RAIMONDI: Yeah, and that's one of  
6 the big beauty of this model that we were talking  
7 about, the empirical transport is. You've got a  
8 billion larvae out there, and it might be 4  
9 percent loss. You've got 100 larvae out there,  
10 you should still get a 4 percent loss.

11 And it's invariant. Doesn't matter how  
12 many larvae are actually present. It just matters  
13 what the intake rate is.

14 And so the expectation is that there  
15 could be increases in larval abundance in Santa  
16 Monica Bay, as there are naturally. You can see  
17 by these bumps that jump up and down over time.  
18 But that the fraction that are lost due to the  
19 operation of this plant or Scattergood or Redondo  
20 or any of the plants, should be relatively  
21 constant over time regardless of what the absolute  
22 numbers are.

23 HEARING OFFICER SHEAN: Okay.

24 DR. CAILLIET: Can I amplify that with  
25 just one or two sentences?

1 HEARING OFFICER SHEAN: Sure.

2 DR. CAILLIET: My point when I brought  
3 up the Herbison, et al, paper -- biomass of fish  
4 impinged on a handful of power plants in southern  
5 California. There are bumps in those curves, too.  
6 But the net trend was down. We didn't use  
7 regression lines, we put little arrows to show  
8 what we thought the direction was.

9 The interesting thing is that the peaks  
10 and valleys are very closely tied between the  
11 adults that are listed in that able and the larvae  
12 that they subsequently come from. It makes sense,  
13 you have more adult fish, you can expect them, if  
14 they're reproducing, to put out more larvae. And  
15 vice versa, although there's a lag period between  
16 those two. It doesn't happen to be very long  
17 between the adults and the larvae, but it has to  
18 be a bit longer between the larvae ultimately  
19 becoming adults.

20 So my point was that both -- were giving  
21 us the same trend, which was not looking good,  
22 heading down.

23 HEARING OFFICER SHEAN: All right, then  
24 just to get back to the testimony earlier that you  
25 could have a 316B study that would show there are

1 no significant adverse impacts. How, given these  
2 trend lines and the data that you're showing, how  
3 can you end up with that?

4 DR. DAVIS: You mean that it could not  
5 be significant?

6 HEARING OFFICER SHEAN: Right, how would  
7 it not be significant?

8 DR. DAVIS: Well, cumulatively we  
9 believe and have testified that for these fish it  
10 is significant. But on a project-specific basis,  
11 meaning only the take of this one power plant, it  
12 may not be significant maybe if this was the only  
13 thing that was going on.

14 HEARING OFFICER SHEAN: So let me just  
15 understand your testimony. On a site-specific  
16 project basis, it may not be significant, but  
17 cumulatively it is significant?

18 DR. DAVIS: That's correct.

19 HEARING OFFICER SHEAN: And would you  
20 say based upon your data it couldn't be anything  
21 other than significant?

22 DR. DAVIS: Cumulatively?

23 HEARING OFFICER SHEAN: Yes.

24 DR. DAVIS: I believe that cumulatively,  
25 yes, it is significant for most of these fish



1 species.

2 HEARING OFFICER SHEAN: Could it be  
3 anything other than significant, given the data  
4 that you have in your presentation?

5 DR. DAVIS: I don't think so because  
6 you're taking -- basically you're taking away fish  
7 that are already in decline.

8 HEARING OFFICER SHEAN: So if that's the  
9 case why does the staff want us to conduct a study  
10 merely to show that on a site-specific basis it  
11 may not be significant, if you believe -- I'm  
12 sorry, Mr. Abelson, I'm going to --

13 DR. DAVIS: Because CEQA requires --

14 HEARING OFFICER SHEAN: That's what we  
15 were talking about earlier this morning.

16 DR. DAVIS: Yeah, because CEQA requires  
17 if you identify a significant impact that you have  
18 to mitigate it to the extent feasible. If we  
19 don't know which fish species are being most  
20 affected by this particular power plant, how can  
21 we identify appropriate mitigation.

22 HEARING OFFICER SHEAN: So appropriate  
23 mitigation might be some compensatory offsite  
24 activity?

25 DR. DAVIS: That's one form of

1 mitigation.

2 HEARING OFFICER SHEAN: And --

3 DR. DAVIS: It also could be, you know,  
4 it also could be some change in the design of the  
5 intake. For the San Onofre Nuclear Generating  
6 Station they've done both.

7 HEARING OFFICER SHEAN: And what did  
8 they do at San Onofre to reduce entrainment  
9 effects?

10 DR. DAVIS: Pete could probably answer  
11 that best.

12 DR. RAIMONDI: They didn't change --  
13 they changed the intake as mitigation for  
14 impingement.

15 DR. DAVIS: That's true.

16 DR. RAIMONDI: Not for entrainment.  
17 There really is no effective, other than the  
18 Gunderboom. I mean that doesn't appear to me to  
19 be effective at this point, but it could turn out.  
20 There's really no effective entrainment barrier at  
21 this point, if you're going to use once-through  
22 cooling.

23 HEARING OFFICER SHEAN: So does that  
24 mean there's no feasible mitigation for  
25 entrainment?

1 DR. RAIMONDI: No. I'm just thinking if  
2 one of the mitigation measures was to change the  
3 intake structure, really the only thing you can do  
4 that would have any effect at all on entrainment  
5 would be to move the location of the intake,  
6 itself. And that would just change the  
7 composition of the fish and other things that  
8 you'd get. If you moved it nearer shore versus  
9 further away from shore you would get a different  
10 suite of species.

11 But I can't think of any, there hasn't  
12 been any that's been proposed, other than  
13 Gunderboom or a Gunderboom-like system that could  
14 mitigate at the pipe end of things if you're using  
15 once-through cooling.

16 The mitigation measures that have been  
17 used in other cases have ranged from artificial  
18 reefs to wetland restoration and creation. To  
19 putting in some sort of behavioral barriers inside  
20 the plant to decrease impingement rates; that's  
21 impingement rates again.

22 And there's been proposals that have  
23 been floated in some of the recent places that  
24 would actually extend beyond that range of things  
25 to sort of almost terrestrial buffer areas to

1 protect wetlands.

2 And so they range across the board, but  
3 in general, in general they tend to be offsite.

4 HEARING OFFICER SHEAN: Okay, now, just  
5 as Mr. Abelson does, to summarize --

6 (Laughter.)

7 HEARING OFFICER SHEAN: -- if I'm  
8 understanding your testimony correctly, in terms  
9 of mitigation to the once-through cooling  
10 equipment for purposes of entrainment, with the  
11 possible exception of the Gunderboom, there seems  
12 to be no technological fix to avoid or reduce  
13 entrainment impacts, is that correct?

14 DR. RAIMONDI: What I can tell you is  
15 that based upon proposals that have been put  
16 forward, and there may be other engineering  
17 solutions that people are dreaming of right now,  
18 the only one that has been put forward as a  
19 potential onsite mitigation to the intake  
20 structure is the Gunderboom. Or there are these  
21 modifications of Gunderboom-like systems, you  
22 know, screens, basically, reels and screens.

23 So, other than that I'm not aware of  
24 any.

25 HEARING OFFICER SHEAN: Okay, and so

1       that the only other alternative in terms of  
2       mitigation or avoidance, if you will, is offsite  
3       in some compensatory or offset type of  
4       arrangement?

5               DR. RAIMONDI:  Yeah.  Other things have  
6       been floated and have been used actually for SONGS  
7       are things like hatcheries, and you know, those  
8       sorts of issues or fixes.  But onsite, no.  
9       Especially not for when there's coastal intakes.

10              HEARING OFFICER SHEAN:  And for that to  
11       be effective, that hatchery to be effective,  
12       presumably then you have to know something about  
13       the nature of the species that you're entraining,  
14       right?

15              DR. RAIMONDI:  You absolutely do.

16              HEARING OFFICER SHEAN:  Yeah, and is  
17       there reason to believe that that's going to be  
18       significantly different from the species you're  
19       impinging?

20              DR. RAIMONDI:  I think another issue  
21       that really hasn't been discussed is this -- you  
22       want to do two things when you do these  
23       assessments, at least two things.

24              One is you want to really characterize  
25       the composition of things that's coming in, so you

1 really have an accurate assessment of what's being  
2 lost. Because they're not all going to be  
3 predictable in terms of their abundances.

4 The other is you want to have a sheer  
5 number. I mean so as an example if we use this  
6 empirical transport model you might come up with a  
7 number that says it's 5 percent of the population  
8 at risk is being entrained and lost of the  
9 population in a community.

10 That's a very different number than 10  
11 percent. You might, you know, cause there to be  
12 different levels of mitigation at the 5 percent or  
13 the 3 percent range compared to the 10 percent or  
14 15 percent range.

15 So, the estimate of the actual sheer  
16 number, you know, that number, it has had dramatic  
17 consequences on the mitigation that has been both  
18 proposed and the amount of money that has been set  
19 forward for the mitigation.

20 It was probably the single most  
21 important number was that number that was  
22 calculated based upon the model in terms of what  
23 was going to be done in mitigation and how much  
24 money was going to be spent doing it.

25 HEARING OFFICER SHEAN: Okay, let me re-

1 ask the question.

2 DR. RAIMONDI: Yeah.

3 HEARING OFFICER SHEAN: So is there a  
4 correlation between the species and number that  
5 are impinged and the --

6 DR. RAIMONDI: Entrained, do you mean?

7 HEARING OFFICER SHEAN: No. Is there a  
8 correlation between the species and number of fish  
9 that are impinged, and the species and quantity of  
10 larvae that are being entrained?

11 DR. RAIMONDI: Very little. Very  
12 little. There's a number of species that are  
13 fishes don't even have larvae. And so they're  
14 clearly not in the ballpark --

15 HEARING OFFICER SHEAN: So those are  
16 easy to identify, right?

17 DR. RAIMONDI: Yeah, and, in fact, in  
18 terms of impingement, the vast majority of things  
19 that are impinged are anchovies, at least in many  
20 cases, down at SONGS that was the case. Up north  
21 it's different.

22 But where there's a significant number  
23 of individuals that are impinged it tends to be  
24 things like anchovies. They are almost always not  
25 found to be very important in terms of the

1       entrainment effects on these.

2               Rockfish, you know, the things that  
3       people really care about tend to be in low  
4       numbers. And I suspect around here it would be  
5       another species like the croakers, are the ones  
6       that would probably end up being the things that  
7       would most entrain. And they would vary  
8       dramatically in terms of impingement.

9               And so when it has been looked at with a  
10       comprehensive data set taken in the same place,  
11       meaning, you know, SONGS versus SONGS, or Moss  
12       versus Moss, not Scattergood versus El Segundo or  
13       Ormond Beach versus, there hasn't been a very  
14       strong connection between impingement and  
15       entrainment.

16              DR. CAILLIET: Can I amplify that with  
17       one sentence, too?

18              HEARING OFFICER SHEAN: Sure.

19              DR. CAILLIET: Part of the reason for  
20       that is that a lot of the larvae that are  
21       entrained are coming from away from the plant.  
22       And some of these larvae can be in the water  
23       column for days.

24              So you could have anchovies spawning 50  
25       miles north; if the current's going south they



1       could come from there and not even close to being  
2       related to the fish that are attracted to the  
3       intake or that could possibly be impinged.

4               MR. MCKINSEY:   Hearing Officer Shean, I  
5       had a question for Mr. Paznokas who's been very  
6       patiently --

7               HEARING OFFICER SHEAN:   Yes.

8               MR. MCKINSEY:   You had indicated that  
9       you weren't necessarily an expert on CEQA or the  
10      NPDES permitting requirements of the Clean Water  
11      Act, but you did indicate that it's the official  
12      position of the California Department of Fish and  
13      Game that a 316B-like study is needed.

14              And my question is what exact authority,  
15      particularly authority that the California  
16      Department of Fish and Game has some type of  
17      responsibility to evoke their official position on  
18      are you citing that is establishing this  
19      obligation that you feel we would need to do a  
20      316B-like study?

21              MR. PAZNOKAS:   Being the trustee of the  
22      fish and wildlife resources of the state it is our  
23      job to protect, maintain and enhance those  
24      resources.   And to do so, I need data and  
25      information; the Department needs data and

1 information to make those determination on whether  
2 or not those resources are being impacted.

3 And in that capacity we are obliged to  
4 comment and make recommendations on various things  
5 like this.

6 MR. McKINSEY: But you're not citing any  
7 specific authority, other than it might be perhaps  
8 CEQA or the NPDES permitting that would  
9 specifically require us to perform the study?

10 MR. PAZNOKAS: I'm not sure if I  
11 understand your question.

12 MR. McKINSEY: Do you have any specific  
13 regulation that you're citing as the --

14 MR. PAZNOKAS: Oh, in the Fish and --

15 MR. McKINSEY: -- California Department  
16 of --

17 MR. PAZNOKAS: -- Game regulations?

18 MR. McKINSEY: -- Fish and Game that  
19 would require us to perform a study.

20 MR. PAZNOKAS: Again, there are  
21 several --

22 MR. McKINSEY: That you're saying we  
23 don't comply with without completing the study.

24 MR. PAZNOKAS: There are, I don't have  
25 the Fish and Game regulation book in front of me,

1       so I can't quote you verse, but --

2               MR. MCKINSEY: Does the letter provide  
3       any?

4               MR. PAZNOKAS: No, I don't believe it  
5       does. In fact, I know it doesn't. But, we were  
6       asked by the Energy Commission to comment on this,  
7       as a resource agency.

8               MR. MCKINSEY: Thank you.

9               HEARING OFFICER SHEAN: Okay. Shall we  
10      get to Dr. Gold?

11              MR. FLEISCHLI: If he's still with us.

12              HEARING OFFICER SHEAN: Yeah, if he's  
13      still with us.

14              MR. PAZNOKAS: Thank you.

15              PRESIDING MEMBER PERNELL: Thank you  
16      very much.

17              HEARING OFFICER SHEAN: Thank you.

18              MR. ABELSON: Speak up again.

19              DR. GOLD: Hello.

20              MR. ABELSON: Yeah. We're trying to  
21      make sure we've got a sound check on you that's  
22      good, Dr. Gold.

23              DR. GOLD: Okay.

24              MR. FLEISCHLI: And, Mark, if you can't  
25      hear me, you know, just please ask us to speak up.

1 HEARING OFFICER SHEAN: Why don't you,  
2 if you'd like, you can move up.

3 MR. FLEISCHLI: I'll just start with a  
4 brief opening statement. I wanted to first thank  
5 very much Energy Commission Staff for their  
6 accommodation of us and the Commission, as well,  
7 for allowing us to intervene in this matter. Also  
8 to accommodate Dr. Gold who is in Florida right  
9 now, with the teleconference availability, and Dr.  
10 Richard Ambrose, who will be testifying tomorrow  
11 morning. I appreciate you accommodating their  
12 schedules.

13 I'm going to try to keep it brief  
14 because I think that the staff of the Energy  
15 Commission has done a really phenomenal job in  
16 terms of the presentation of their case. So we  
17 will try not to be repetitive. If we get  
18 repetitive you can slap us down, if you want.

19 There seems to be, as you all know,  
20 really three issues here. Does this proposal  
21 maintain our environmental resources? Does it  
22 enhance our resource? And does it, where  
23 feasible, restore our resource?

24 The idea of the maintain, staff has  
25 tried to approach that in terms of this monthly

1 flow cap proposal. But from my perspective, that  
2 does not do anything towards enhancing or  
3 restoring the resource.

4 So the question I think you need to ask  
5 yourself is, is the applicant restoring the Bay  
6 with their proposal. In our opinion, no question  
7 that they are not. Unfortunately this project is  
8 not restoring or enhancing the situation in Santa  
9 Monica Bay. And as the applicant has set forth,  
10 it's not even maintaining the status quo.

11 Even if you accept their data, you have  
12 to ask yourself, how does killing 44,000 queenfish  
13 enhance the environment in Santa Monica Bay,  
14 particularly with the evidence we've already heard  
15 today.

16 How does killing 12,000 jack smelt  
17 enhance the environment? How does killing what  
18 the applicant estimates to be billions of larvae,  
19 and experts for the Energy Commission has  
20 estimates to be possibly trillions of larvae  
21 enhance the environment?

22 Unfortunately, as we will testify, the  
23 information has been, that's relied on by the  
24 applicant, outdated studies, some done 50 miles  
25 away or more with old science, as has already been

1 pointed out.

2 Indeed, the evidence will show that  
3 there's more that is needed to maintain and  
4 enhance this resource.

5 With regard to the alternative, the  
6 applicants rely entirely on speculation about  
7 legal conclusions. Yet, interestingly, just  
8 recently when the issue of EPA came up with regard  
9 to the 316B and whether EPA would grandfather the  
10 study that might be done in this context, the  
11 applicant strongly objected and said EPA could go  
12 any which way they possibly want on that sort of  
13 thing, yet when it comes to the thermal plan and  
14 the Regional Board they seem absolutely convinced  
15 that not only does the thermal plan apply, but  
16 that they would be stuck with the 20 degree  
17 Fahrenheit limitations in that thermal plan.

18 Unfortunately this process has come to a  
19 place where instead of being creative we all seem  
20 to be fighting about what the appropriate remedies  
21 are in this situation. By way of example, on the  
22 alternative, it seems that there's just absolute  
23 opposition to the idea of using reclaimed water  
24 from Hyperion. No creative thinking in terms of  
25 addressing some of the emergency type situations

1       that might present themselves, and finding  
2       compromise in terms of allowing some limited  
3       extraction from the Bay.

4               I want to share with you a little quote  
5       to put everything into context for you. Hopefully  
6       it's not too preachy, but in the environmental  
7       community we get a little preachy on occasion.

8               As an old man walked the beach at dawn  
9       he noticed a young man ahead of him picking up  
10      starfish and flinging them into the sea. Finally  
11      catching up with the youth he asked him why he was  
12      doing this. The answer was that the stranded fish  
13      would die if left until the morning sun. "But the  
14      beach goes on for miles and there are millions of  
15      starfish," countered the other, "how can your  
16      effort make any difference?" The young man looked  
17      at the starfish in his hand and threw it into the  
18      safety of the waves. "It makes a difference to  
19      this one," he said.

20              I hope you'll keep that in mind in terms  
21      of when we talk about the impacts from this  
22      proposed project. We can talk about the species  
23      as a whole, but we also have to remember the  
24      individuals, there are impacts there, as well.

25              With that I'm going to turn to Dr. Gold.

1 He will be testifying primarily on the  
2 alternatives and on the monitoring programs that  
3 have been conducted in the region and that are  
4 relied upon by the applicant to suggest that there  
5 is adequate information there, which we will  
6 contest.

7 DIRECT EXAMINATION

8 BY MR. FLEISCHLI:

9 Q Dr. Gold, can you please briefly just  
10 describe your education and your professional  
11 background?

12 A Sure. I have a bachelors and masters in  
13 biology from UCLA, as well as a doctorate in  
14 environmental science and engineering --

15 HEARING OFFICER SHEAN: Stand by.

16 MR. FLEISCHLI: Mark, can you hold on,  
17 I'm sorry. We're having --

18 (Parties speaking simultaneously.)

19 (Off-the-record microphone adjustments.)

20 HEARING OFFICER SHEAN: We need to at  
21 least have him sworn in, and so he understands  
22 he's under oath.

23 MR. FLEISCHLI: Okay.

24 DR. GOLD: Do you want me to swear --

25 MR. FLEISCHLI: Yeah, just keep talking



1 so we can test the volume.

2 (Pause.)

3 MR. FLEISCHLI: Mark, they're going to  
4 administer the oath if you don't mind.

5 DR. GOLD: Of course.

6 MR. FLEISCHLI: And raise your right  
7 hand, I believe.

8 Whereupon,

9 MARK GOLD

10 was called as a witness herein, and after first  
11 having been duly sworn, was examined and testified  
12 as follows:

13 BY MR. FLEISCHLI:

14 Q Thanks, Dr. Gold. Can you please, once  
15 again, describe your educational background and  
16 your professional background.

17 A Sure. I have a bachelors and masters in  
18 biology from UCLA. And a doctorate in  
19 environmental sciences and engineering also from  
20 UCLA.

21 I have taught courses in ocean  
22 pollution, graduate level courses twice at UCLA in  
23 the School of Public Health.

24 I've been the Chair of the Steering  
25 Committee of the Santa Monica Bay Restoration

1 Project for at least the last four years. I was a  
2 founding member and still continue to be a member  
3 of the Santa Monica Bay Restoration Project  
4 Technical Advisory Committee.

5 I'm a member of the newly formed  
6 California Ocean Science Trust, one of ten people  
7 in the state who are members of that group.

8 Going back to the Santa Monica Bay  
9 Restoration Project information, one of the  
10 highest priorities of the restoration project,  
11 which is part of the U.S. National Estuary  
12 Program, was to look at monitoring in Santa Monica  
13 Bay. And so I was very involved in that process  
14 and part of making recommendations that came from  
15 the Bay restoration project. That effort was  
16 spearheaded by Dr. Ross Bernstein, who I'm sure  
17 many of you guys know.

18 Let's see, in relation to the Hyperion  
19 Treatment Plant, I've worked on Hyperion Treatment  
20 Plant issues for, wow, probably 16 years at this  
21 point. And our organization, Heal The Bay, was a  
22 friend of the court in the lawsuit making Hyperion  
23 go to full secondary treatment, and also upgrading  
24 their sewer system in the Los Angeles area.

25 As such, I took part in quarterly

1 consent decree meetings for about a decade or  
2 more. I met with everyone from Board of Public  
3 Works Officials to the Directors of Bureau of  
4 Sanitation, Bureau of Engineering on a wide  
5 variety of issues relating to the Hyperion  
6 Treatment Plant, as well as the City of L.A.  
7 systems, sewage treatment systems.

8 And take part in the City's integrated  
9 resources planning effort to come up with a  
10 comprehensive plan dealing with water resources in  
11 Los Angeles. And, of course, that deals with both  
12 stormwater and wastewater issues, as well.

13 I'm sure I could go on. I'm not sure  
14 what else you'd like me to touch upon.

15 Q I think that's fine at this point; thank  
16 you. And, Dr. Gold, you've read the written  
17 direct and rebuttal testimony provided by the  
18 applicant in this case?

19 A Yes, I have.

20 Q Unfortunately you did not hear much of  
21 the testimony today, is that right?

22 A I did not; I only heard about the last  
23 hour.

24 Q Okay. And you also submitted written  
25 direct and rebuttal testimony, is that correct?

1           A     Yes, I did.

2           Q     Is there any changes to that testimony  
3 you'd like to make?

4           A     No, no changes.

5           Q     What about any clarification?  In other  
6 words, one issue raised by the applicant with  
7 regard to whether or not you had testified that  
8 Santa Monica Bay was an estuary, or whether it is  
9 simply part of the National Estuary Program.

10          A     Yeah, on that particular issue, it's  
11 part of the National Estuary Program.  It was  
12 deemed in compliance -- to actually be qualified  
13 for the National Estuary Program.  There's  
14 something like 35 of them.  And actually Santa  
15 Monica Bay was added to it back in 1988, if I  
16 recall correctly.

17                 But from the standpoint of how the  
18 California State Water Resources Control Board and  
19 the Regional Water Quality Control Board regulate  
20 water quality in that area, it's under the  
21 California oceans plan.  So, not as an estuary --  
22 not an enclosed basin estuaries plan.

23                 So if one of these things were -- if an  
24 estuary, from the standpoint of EPA's designation,  
25 but not from the regulatory compliance point of

1 view.

2 MR. FLEISCHLI: Okay. Well, I have no  
3 further background questions unless someone wants  
4 to voir dire Mark.

5 MR. McKINSEY: I would like to actually  
6 ask him a few questions about his education.

7 HEARING OFFICER SHEAN: Is this going to  
8 his qualifications to testify as an expert?

9 MR. McKINSEY: Yes.

10 HEARING OFFICER SHEAN: Okay, why don't  
11 you go ahead and do that.

12 VOIR DIRE

13 BY MR. McKINSEY:

14 Q Hi, Mr. Gold. This is John McKinsey;  
15 I'm counsel for the applicant, El Segundo Power  
16 II, LLC.

17 A Hi.

18 Q I had a couple of questions about your  
19 degree, the doctorate in environmental science and  
20 engineering.

21 A Okay.

22 Q Can you give a general description of  
23 the engineering and the other physics-related  
24 classes that you took in obtaining that degree?

25 A Yeah. It's a comprehensive doctorate

1 program which has two years of intensive course  
2 work in everything from environmental law to  
3 engineering to biology, biostats and the like.

4 I probably took, you know, you're taking  
5 me back here, so remember this was a long time  
6 ago. Probably took, I'd say, three or four  
7 wastewater engineering and wastewater chemistry  
8 oriented classes that come to mind. Everything  
9 from hydrology to specifically wastewater  
10 treatment design and those sorts of things.

11 Q Have you ever worked in the power  
12 industry?

13 A No, I have not.

14 Q And have you any experience in designing  
15 or just fundamental principles of operations of  
16 power plants?

17 A No, I do not.

18 MR. MCKINSEY: That's my only questions,  
19 thank you.

20 DR. GOLD: Okay.

21 HEARING OFFICER SHEAN: All right, do  
22 you want to offer his declaration?

23 MR. FLEISCHLI: Yes, he has both a  
24 declaration on the written direct, as well as  
25 rebuttal declaration that I would like included in

1 the record. As well as his CV was part of his  
2 original declaration.

3 MR. MCKINSEY: We would object to his  
4 status as an expert in terms of testifying on the  
5 power plant side of the feasibility of the cooling  
6 options report. We don't object to his status as  
7 an expert on wastewater treatment and the  
8 operations of the Hyperion Treatment Plant. But  
9 we would object to his status as an expert for  
10 power plant principles, cooling principles and  
11 power plant operations.

12 And Mr. Gold probably didn't hear me say  
13 that.

14 HEARING OFFICER SHEAN: Given the  
15 relatively limited testimony that he has with  
16 regard to power plant operation and engineering, I  
17 think what we'll do, and most of the rest of it  
18 goes to the other matters, we'll allow him to  
19 testify and admit into the record his testimony  
20 and any -- your objection will go to the weight  
21 that the Committee will afford the evidence, as  
22 opposed to its admissibility.

23 MR. FLEISCHLI: That will only be for  
24 those specific issues related to that category of  
25 objection?

1 HEARING OFFICER SHEAN: Power plant  
2 engineering and operation.

3 Okay, so if you want him to either  
4 summarize it or go further, or have him available  
5 for cross?

6 MR. FLEISCHLI: Well, yeah, I'd like to  
7 get into some specific questions and he will be  
8 available for cross this afternoon.

9 HEARING OFFICER SHEAN: Sure.

10 MR. FLEISCHLI: He will not be available  
11 for cross tomorrow unfortunately.

12 DIRECT EXAMINATION - Resumed

13 BY MR. FLEISCHLI:

14 Q Dr. Gold, you mentioned your experience  
15 with the Hyperion Sewage Treatment Plant. Can you  
16 mention how much was spent in upgrading that  
17 sewage treatment plant facility in order to comply  
18 with the secondary treatment requirements?

19 A Yes. It was roughly \$1.6 billion that  
20 was spent from about 1986/87 to 1998. And there  
21 was another \$2.4 billion that was spent on  
22 upgrading the sewer system in the Los Angeles  
23 area.

24 Q And when was the Hyperion upgrade  
25 completed?



1           A     It was roughly November of 1998.

2           Q     And in your opinion has that proven to  
3     be, has that facility proven to be a reliable  
4     treatment facility at this point?

5           A     Absolutely. The number of violations of  
6     their NPDES permit requirements over the last five  
7     years has dropped dramatically. The number -- the  
8     maximum loading of solids going into the Bay today  
9     versus about 15 years ago has been more than a 90  
10    percent reduction in solids.

11                     And basically the plant, the reason it  
12    took so long to rebuild was the footprint there is  
13    somewhat limited. And so they actually had to  
14    rebuild the facility on the fly, at the same time  
15    as treating the sewage from four million people a  
16    day.

17                     And now that the vast majority of  
18    construction is completed in that area, more than  
19    450 million, about 450 million gallons per day of  
20    secondary treatment facility. There really have  
21    been no compliance problems, even with the new  
22    more stringent 30 mg/liter PSS and BOD  
23    requirements.

24           Q     Dr. Gold, earlier in the day today  
25    Commissioner Pernell asked a question about beach

1 closures in Santa Monica Bay. And certainly there  
2 have been many of those.

3 But in your opinion are those beach  
4 closures caused from the plant malfunction? Or is  
5 it from some other part of the problem in the  
6 system?

7 A Well, since Assembly Bill 411 passed and  
8 really was enacted into law in 1998 none of the  
9 closures that I can recall in Santa Monica Bay,  
10 which as you stated, earlier there had been many,  
11 were due to operational difficulties at the  
12 Hyperion Treatment Plant.

13 So to the best of my knowledge, that has  
14 not happened since they've been at full secondary.  
15 When you do have beach closures it's due to  
16 predominately within this area to sewage spills  
17 that are from the sewer infrastructure, itself.  
18 The sewage is not captured, gets into the storm  
19 drain system untreated, and then causes health  
20 risks at beaches and very high fecal bacteria  
21 densities at beaches.

22 You also get permanent postings and  
23 periodic postings in areas where you have urban  
24 runoff flowing directly to beaches or just even  
25 polluted creeks and streams such as Malibu Creek.

1           Q     Dr. Gold, are you familiar with the  
2     Energy Commission Staff's proposal alternative to  
3     use Hyperion wastewater for cooling at the El  
4     Segundo facility?

5           A     Yes, I am.

6           Q     What's your general opinion about that?

7           A     My general opinion on that, which I  
8     stated in what was submitted, was that it was an  
9     intriguing possibility to attempt to eliminate  
10    once-through cooling.  And something that I  
11    believed deserved further investigation.

12          Q     Can you describe briefly the City of Los  
13    Angeles' integrated resource planning process?

14          A     Yes.  The City of L.A. has spent  
15    considerable time and expense, more than two years  
16    and about \$2 million roughly to date, on  
17    developing an integrated resources plan for water  
18    and wastewater in Los Angeles.

19                And the thought is that all of these  
20    issues historically in Los Angeles have been dealt  
21    with completely separately.  So, the people in  
22    wastewater never really talked to the stormwater  
23    folks and coordinated projects together.  And also  
24    the people in the Bureau of Sanitation, and really  
25    the entire Department of Public Works, really

1        didn't coordinate very well with the Department of  
2        Water and Power.

3                And the thought was, since it's all  
4        under the City of Los Angeles umbrella, was to  
5        really try to close the loop by coming up with  
6        this integrated water resources plan to deal with  
7        everything from water reuse to stormwater  
8        pollution reduction and reducing our reliance on  
9        water supplies being imported to the region.

10               And as such, one of the strongest  
11        recommendations was in the planning phase. And  
12        right now we've just initiated the implementation  
13        phase -- I'm on that committee, as well -- is to  
14        try to maximize water reuse within the region.

15               And in that regard, this sort of project  
16        would fit very nicely into that goal -- it's not a  
17        requirement -- that goal for the City of Los  
18        Angeles to be reached by 2020 or before.

19               Q        From a biological standpoint, does it  
20        make a difference in your mind if you have, for  
21        lack of a better term, hot water coming out of an  
22        outfall from the El Segundo facility that is in  
23        fairly shallow water close to shore versus that  
24        same hot water coming out of the Hyperion five-  
25        mile outfall at 200 feet depth?

1           A     I think it would make a difference for a  
2     number of reasons. But obviously I think that's  
3     to be something critical to look at as part of the  
4     feasibility study.

5                 But a couple things that are different.  
6     One is, if I recall correctly, the discharge right  
7     now is at 18 meters, is that right? And the  
8     discharge of Hyperion's wastewater is at 60  
9     meters. And the other thing about Hyperion's  
10    wastewater is the discharge through diffusers, and  
11    so you don't have as much of a concentrated impact  
12    right then and there that could occur.

13                And not to mention discharging at  
14    greater depth could have a difference, could  
15    lessen the impacts, as well, within that direct  
16    area.

17           Q     Do you have any major concerns regarding  
18    public health from using the five-mile outfall  
19    with treated water -- or excuse me, heated water  
20    from El Segundo?

21           A     Well, as I stated, in broad strokes, in  
22    my statement that I was concerned enough to state  
23    that there needed to be an assessment of the  
24    impact of heated wastewater on the transport of  
25    Hyperion's effluent plume.

1           And I think the fact that the plume  
2       would rise more rapidly, and it would obviously  
3       change the existing characteristics of the  
4       transport that exists today. I've seen cases in  
5       other sewage treatment plants where plumes have  
6       made it to shore.

7           So it's one of these things that would  
8       definitely have to be looked at and modeled during  
9       a feasibility study to see whether or not there  
10      would be an increase in public health risks.

11          The good news, though, to date, though,  
12      and there's probably been more monitoring on this  
13      particular aspect than really almost any sewage  
14      treatment plant you'll find in the state is that  
15      because they discharge at five miles offshore and  
16      at 60 meters, very very rarely do you see any  
17      impacts of Hyperion's discharge onshore.

18          Occasionally, and I haven't heard of  
19      this in the last few years, occasionally you'll  
20      get some floatables that will sneak through the  
21      process and will end up on shore.

22          But from the standpoint of high bacteria  
23      counts, it's un-disinfected wastewater and you  
24      don't see bacteria counts on the beach that are  
25      attributed to Hyperion.

1           Q     Turning to monitoring, though we're all  
2 chuckling at the floatables, at least that's  
3 what --

4           A     Right.

5           Q     In terms of monitoring issues relative  
6 to the entrainment and impingement data that the  
7 applicant is relying upon here, in your  
8 professional opinion is that data sufficient to  
9 determine the entrainment impacts from this  
10 particular facility?

11          A     No, it is not. I believe the data,  
12 itself, and I heard this just in the last hour as  
13 well, so obviously I'm not the only person who's  
14 saying this -- all the data is more than 20 years  
15 old, and that is something that's of substantial  
16 concern.

17               Obviously, as we've heard earlier today  
18 there's been changes in fish populations in the  
19 region. How much of that is due to whether it's  
20 anthropogenic sources or anthropogenic influences  
21 versus changes, climatic changes and what was just  
22 referred to as Pacific decadal oscillation issues,  
23 is unknown.

24               And that's something that really new  
25 work on entrainment, I think, would be something

1 that is really long overdue; not even a little  
2 overdue. And if you look at what is very well  
3 monitored in Santa Monica Bay, I would say that  
4 really zooplankton throughout the Bay,  
5 ichthyoplankton throughout the Bay, especially at  
6 those shallow water depths, is not very well  
7 studied, other than really in the King Harbor  
8 area. And so that would be something that I'd  
9 been concerned about, as well.

10 Q Mark, in your opinion does sucking in  
11 the 139 billion gallons a year have a significant  
12 cumulative impact on Santa Monica Bay?

13 A I believe the potential for it to have a  
14 significant cumulative impact is very very high.  
15 And just, you know, the data that we have on this  
16 obviously is out of date, and so that's one of the  
17 reasons why -- the major reasons why I think this  
18 needs to be looked at in much greater detail than  
19 it has been over the last 20 years.

20 Specifically what's going on in Santa  
21 Monica Bay, particularly, not what's occurring in  
22 other power plants up and down the coast.

23 Q What about in terms of the applicant's  
24 proposal, does it in any way, based on what you've  
25 heard so far, enhance or restore Santa Monica Bay?



1           A     I don't see anything that the applicant  
2     proposes that will enhance or restore Santa Monica  
3     Bay. Really it just seems like an effort to  
4     maintain the status quo, where really there has  
5     not been -- it has not been operating at peak  
6     levels from the standpoint of intake of cooling  
7     water, and to try to maintain those levels during  
8     the most critical months where you have highest  
9     densities of ichthyoplankton.

10           But, you know, that's how it's been  
11     operated the last few years anyway, so -- really  
12     all year. And so it really maintained those low  
13     flows during that time. I wouldn't consider that  
14     any sort of enhancement or restoration at all.

15           Q     What about the \$1 million to the Santa  
16     Monica Bay Restoration Commission? Do you have  
17     any opinions on that?

18           A     Yeah, you know, I first heard about that  
19     literally the night before I think the first  
20     hearing that you guys had, the preliminary  
21     hearing, I think, in early January. And it was a  
22     shock to me, because as Chair of the Steering  
23     Committee of the Bay restoration project, I mean I  
24     should have been the first person to hear, along  
25     with Marianne Yamaguchi.

1           And I called up Marianne immediately  
2     after. She had no idea what it was, either. And  
3     so I thought that was pretty shocking that  
4     something was being laid out on the table as a  
5     proposal, but neither the Executive Director nor  
6     the Chair of the Steering Committee had any idea  
7     about.

8           And as for whether a million dollars is  
9     adequate, you know, that's just not how science is  
10    done. I mean you have to look at what questions  
11    are you trying to answer, and then come up with  
12    the correct monitoring design to try to answer  
13    those questions. Not just throw a dollar out on  
14    the table, a dollar amount out on the table and  
15    hope that that's adequate to address some of these  
16    questions.

17          So, you know, it may well be that it's  
18    in the ballpark, but I have no idea because you  
19    need to develop these monitoring programs from the  
20    ground up, not just throw a dollar amount out  
21    there.

22          Q     Mark, there's also been some testimony  
23    today about the NPDES permit in front of the  
24    Regional Board.

25          A     Right.

1           Q     And general issues relating to the  
2     Regional Board.  Would you care to speculate at  
3     all about the Regional Board and the possibility  
4     of the applicant having to comply with the 20  
5     degree Fahrenheit differential for a new source in  
6     Santa Monica Bay?

7           A     Well, I thought it was fascinating in  
8     that I've probably appeared before the Regional  
9     Water Quality Control Board over the last 15 years  
10    more than anybody, at least in the L.A. region,  
11    anybody in the state.  And I've probably been to  
12    about 100 of those hearings.

13               And it was just interesting the  
14    certainty in which those recommendations were  
15    made.  And, you know, I've learned from my  
16    experiences testifying over the years that it just  
17    doesn't quite work that way.  It's really up to  
18    the regulatory agency to make the determination on  
19    a case-by-case basis.

20               Before this meeting I called the  
21    Regional Board and really tried to get a better  
22    idea of really where they were on this issue.  
23    They, like everybody else in the state, with  
24    everything else going on, it has not been a high  
25    priority because they don't have a decision in

1 front of them right now to make.

2 And so to basically make the statement  
3 that this would be considered a new source under  
4 the California thermal plan, or that it would need  
5 a brand new NPDES permit, I mean you know, it's  
6 being discharged from the Hyperion Sewage  
7 Treatment Plant, it just -- it's making a  
8 definitive statement without really going through  
9 the process at the Regional Board. It is  
10 absolutely premature at this point.

11 And, again, just based on my own  
12 experience, even looking at the new NPDES permit  
13 issue, we just went through this with West Basin,  
14 the water reclamation plant, taking wastewater  
15 from Hyperion -- treated wastewater from Hyperion  
16 and actually treat some of it with reverse  
17 osmosis, and then discharged back, the wastewater,  
18 the brine, back into the five-mile outfall.

19 And that was not considered a separate  
20 NPDES permit. It was just something that had to  
21 be monitored from the standpoint of influent on  
22 the part of West Basin to make sure that they  
23 weren't causing or contributing to any sort of  
24 violation that was coming out of the five-mile  
25 outfall.

1           So, there was a case that was recent,  
2           the last couple of years, where there was not a  
3           new NPDES permit. And I'm not saying that's the  
4           way it's going to be. I'm just saying these  
5           things are really dealt with on a case-by-case  
6           basis by the Regional Board.

7           MR. FLEISCHLI: I have no further  
8           questions. I'd be happy to open it up to anybody  
9           who wants to ask Dr. Gold questions.

10          PRESIDING MEMBER PERNELL: Dr. Gold,  
11          this is Commissioner Pernell.

12          DR. GOLD: Hello.

13          PRESIDING MEMBER PERNELL: Thank you for  
14          hanging around on the phone. My first question  
15          is -- can you hear me?

16          DR. GOLD: Yes, I can, thank you.

17          PRESIDING MEMBER PERNELL: My first  
18          question is you indicated that you had about 16  
19          years experience with the waste treatment plant?

20          DR. GOLD: Yes, I did.

21          PRESIDING MEMBER PERNELL: Does that  
22          plant shut down for repairs every year or every  
23          two years?

24          DR. GOLD: No, it does not.

25          PRESIDING MEMBER PERNELL: It runs year-

1 round, constantly?

2 DR. GOLD: You're talking about the  
3 Hyperion Sewage Treatment Plant? Absolutely. It  
4 runs every single day. You know, the wastewater  
5 from four million people waits for no one.

6 (Laughter.)

7 PRESIDING MEMBER PERNELL: I would agree  
8 with you on that part.

9 (Laughter.)

10 PRESIDING MEMBER PERNELL: Okay, help me  
11 understand something about fish species, and that  
12 is if a cold water fish -- I'm trying to  
13 understand the impacts of warm water on a cold  
14 water species versus warm water on a warm water  
15 species.

16 DR. GOLD: Okay. And the question?

17 PRESIDING MEMBER PERNELL: Well, the  
18 question is would the impact be greater on a cold  
19 water species, that is 200 feet or maybe 60  
20 meters, would that impact be greater with warm  
21 water coming into their atmosphere, or coming into  
22 their environment, would that be greater than warm  
23 water coming into, you know, something that's 30  
24 feet?

25 DR. GOLD: I think basically it's

1 similar to what Steve had asked earlier, and sort  
2 of a typical scientific response is that I think  
3 that needs to be something that needs to be looked  
4 at more closely in a feasibility study.

5 But the reason why I think the impact  
6 might be less is the fact that the discharge isn't  
7 coming from one giant pipe; it's coming from  
8 diffusers. And so the thermal impacts are more  
9 spread out.

10 Also the fact that you are 200 feet  
11 depth, that the impact on the whole water column  
12 as a whole, as opposed to just the benthos right  
13 there, would be expected to be lessened because  
14 you have much more water column to reduce the  
15 thermal impacts by the time it reaches the  
16 surface.

17 PRESIDING MEMBER PERNELL: Okay. Final  
18 question. To your knowledge has anyone or any  
19 group tried to restore or enhance the aquatic life  
20 in Santa Monica Bay?

21 DR. GOLD: You know, this is a good  
22 question because I think some other people who  
23 have testified or may testify tomorrow, I know  
24 Rich Ambrose is involved in the same sort of  
25 thing, and I think Bill Paznokas, who just spoke

1 is. But the settlement from Montrose, with the  
2 DDT off the Palos Verdes shelf, that's something  
3 that right now the natural resources agencies are  
4 struggling with right now, is to try to do that.

5 Because the lost resource there is  
6 indeed the DDT-impacted fishery right there,  
7 especially white croaker has very very high  
8 concentrations of PCB and DDT, but really a wide  
9 variety of fishes also in Palos Verdes have that  
10 problem.

11 And so there's been a great deal of  
12 discussion right now as to how to proceed with  
13 that. It's not a simple thing to go forward and  
14 do. I mean people have generally looked down upon  
15 things like hatcheries from the standpoint that it  
16 doesn't deal with the diversity issue at all. And  
17 then the issue of new reefs, if your loss of  
18 habitat is not reef habitat, then, you know, reefs  
19 aren't really going to be solving a problem.

20 And so there has not, to the best of my  
21 knowledge, within the Bay, itself, been a program  
22 that has successfully improved marine resources in  
23 the Bay. But this is the very reason why -- one  
24 of the major reasons why the Bay restoration  
25 project was even created in the National Estuary



1 Program.

2 Two of its four priorities were natural  
3 resources in Santa Monica Bay. And I can tell  
4 you, the other two they've done a much better job  
5 on, on the natural resources side. We still don't  
6 have a restored plan of wetlands, which obviously  
7 can help a great deal on the fish side in how it's  
8 restored. Malibu Lagoon would be the same sort of  
9 situation.

10 And so that's the status, sort of what's  
11 going on right now in Santa Monica Bay natural  
12 resources restoration.

13 MR. FLEISCHLI: Mark, what about kelp  
14 just real quickly?

15 DR. GOLD: Thank you for adding that.  
16 There is something that is going on right now, the  
17 kelp restoration effort. And being spearheaded  
18 actually by The Bay Keeper, and they're having  
19 some progress so far.

20 And if you look historically it's  
21 something that one of the region's most famous  
22 marine biologists, Wheeler North, started kelp  
23 restoration as early as the mid-60s, off the Palos  
24 Verde Shelf, and so this is sort of maintaining  
25 that tradition in the long term.

1           And that needs to be something that's  
2       done with vigilance. It's not a one-time fix.  
3       You really have to track it over time to make sure  
4       that it's actually successful. That's something  
5       that's being looked at right now, not only by The  
6       Bay Keeper, but Peggy Fong of UCLA.

7           PRESIDING MEMBER PERNELL: Are you  
8       having some success with that?

9           DR. GOLD: I can't hear, I'm sorry.

10          MR. FLEISCHLI: He asked if you were  
11       having any success with that.

12          DR. GOLD: With the kelp reforestation?  
13       There's been some success, but from the standpoint  
14       of saying, you know, there's been an increase of  
15       this number of acres, and productivity has gone up  
16       this much or that much, I don't know that.

17                I think there's been a pending final  
18       paper from Professor Peggy Fong at UCLA that  
19       really, if it hasn't come out in the last couple  
20       months, it should come out by the end of the year.

21          PRESIDING MEMBER PERNELL: All right,  
22       thank you, Mr. Gold.

23          DR. GOLD: No problem.

24          MR. ABELSON: Dr. Gold, this is David  
25       Abelson; I'm the attorney for the staff.

1 DR. GOLD: Okay.

2 CROSS-EXAMINATION

3 BY MR. ABELSON:

4 Q I was wondering, you'd indicated that  
5 there are some restoration efforts going on in the  
6 Santa Monica Bay area. Can you give us any kind  
7 of a financial ballpark as to what, you know,  
8 what's being expended on those?

9 A Well, going through sort of case-by-  
10 case, the Montrose settlement is about \$30  
11 million; and I can't remember what the exact  
12 amount is that's actually going to go towards bald  
13 eagle restoration on the Channel Islands, and how  
14 much is going to go towards fisheries enhancement.  
15 But I think it's roughly around \$20 million that's  
16 going to go towards the fishery side.

17 And it's not because that number was  
18 magically chosen because that would solve the  
19 problem. It's basically that's what was settled  
20 for. So they're really trying to get, the  
21 trustees are trying to get the most out of that  
22 money.

23 As for Ballona wetlands and Malibu Dune,  
24 my best estimate for restoration plan for Malibu  
25 Dune, and we're actually working with the Coastal

1 Conservancy right now on a contract to develop  
2 that restoration plan, ballpark is probably  
3 somewhere in the \$5 million range.

4 And for Ballona, boy, it depends who you  
5 want to talk to and how you want to restore it.  
6 But I mean I've heard anything, depending on how  
7 large a complex you're talking about restoring  
8 there, if you're restoring, you know, 500 acres,  
9 which is what's being talked about right now, then  
10 really it's anybody's guess. But well over \$50  
11 million to restore that.

12 MR. ABELSON: Thank you.

13 MR. McKINSEY: Mr. Gold, can you hear  
14 me?

15 DR. GOLD: Yes, I can.

16 MR. McKINSEY: This is John McKinsey  
17 again.

18 CROSS-EXAMINATION

19 BY MR. McKINSEY:

20 Q You had indicated in your testimony that  
21 West Basin did not require a separate NPDES  
22 permit?

23 A To the best of my knowledge, yes.

24 Q Would it surprise for me to tell you  
25 that there is indeed a separate NPDES permit for

1 West Basin that was issued on August 1, 2000, and  
2 you're actually listed on the service for it,  
3 which was -- and it is the permit to allow West  
4 Basin to discharge through Hyperion outfall?

5 A It's completely separate? It's a  
6 separate NPDES permit, or is NPDES requirements  
7 with basically the monitoring requirements covered  
8 by Hyperion?

9 Q Well, it specifies that there's --

10 A For effluent. I mean for receiving  
11 water?

12 Q It specifies joint monitoring  
13 requirements, but my main question is simply  
14 whether or not you're surprised to hear that there  
15 is a separate NPDES permit for West Basin to  
16 discharge at the Hyperion outfall.

17 A I'd have to go back and review it. I'm  
18 sure I commented on it and everything, I just, you  
19 know, to the best of my knowledge I thought they  
20 were covered under the same NPDES requirement. So  
21 from the standpoint of separate and numeric  
22 effluent limits, which is really the biggest  
23 concern that I was trying to deal with, I'd be  
24 very surprised if they have separate numeric  
25 effluent limits that have to do with discharges

1 directly to receiving water.

2 Probably effluent, like I said, effluent  
3 going into the system is something I know that  
4 they're required to look at. But, I did not  
5 recall off the top of my head that that was the  
6 case.

7 Q Thank you. I have another question.  
8 I'd like you to assume that Hyperion was to  
9 discharge its non-disinfected secondary effluent  
10 right at the beach. Would that be safe to say  
11 that's a problem?

12 A Yeah, of course.

13 Q Is it also potentially a problem if out  
14 at the five-mile outfall that non-disinfected  
15 secondary effluent reaches the surface of the  
16 ocean?

17 A If it reaches the surface of the ocean?  
18 It has been known to reach the surface of the  
19 ocean already.

20 Q Is that a potential problem?

21 A There are no -- it could be a potential  
22 problem depending on -- transport, but it's not,  
23 to the best of my knowledge, and again best of my  
24 knowledge, it's not rec-1 waters right there where  
25 there's human exposure; there's not kelp beds

1       there, soft bottom habitat.

2               So as long as that plume doesn't make it  
3       back to rec-1 waters, that's really the  
4       predominant concern.

5               Q     If it's on the surface is there a  
6       potential for that?

7               A     Is there potential for that?  Yeah,  
8       what's been amazing is whether it's on the surface  
9       or not, I mean what we just found at Huntington  
10      Beach was there was a potential for that with the  
11      plume not making up to the top, but basically  
12      traveling below the thermal clime before it popped  
13      up closer to shore.

14              So it doesn't automatically mean it's a  
15      problem based on where it is in the water column.

16              Q     If you increase the temperature of  
17      water, you would agree that its density decreases?

18              A     Correct, yes.

19              Q     And thus if you place some warmer water  
20      in a colder water area it would have a buoyant  
21      effect until it had completely equalized in  
22      temperature?

23              A     Yes.

24              Q     So if we greatly increase the  
25      temperature of the discharge at the five-mile

1 outfall, that could create a potential that it  
2 might start reaching the surface a lot more often,  
3 correct?

4 A Yes, I would suspect that to be the  
5 case.

6 Q And when you indicated that you felt  
7 that this is an area that required more study,  
8 that's one of the things you're indicating is a  
9 potential problem?

10 A Yeah, I stated that very clearly in my  
11 testimony.

12 MR. MCKINSEY: Thank you, that's it.

13 HEARING OFFICER SHEAN: Anything from  
14 any other party? Anything further?

15 MR. FLEISCHLI: No, nothing further. I  
16 would like to present Richard Ambrose tomorrow  
17 morning.

18 HEARING OFFICER SHEAN: Dr. Gold, this  
19 is Garret Shean, the Hearing Officer. We'd like  
20 to thank you for your participation, and we're  
21 concluded with your testimony. Thank you, again.

22 DR. GOLD: You're welcome.

23 HEARING OFFICER SHEAN: All right, is  
24 there any other matter we should take care of this  
25 afternoon before we --



1           MR. ABELSON: The only other matter I  
2 would raise, I have a scheduling problem for Dr.  
3 Raimondi. He has a class he has to teach tomorrow  
4 afternoon up north at 3:00. So the issue, I  
5 guess, is for cross-examination purposes whether  
6 he needs to remain here tonight; whether he can  
7 participate by phone. And if he is going to -- if  
8 there's going to be insistence that he remain, if  
9 there's a possibility to at least have any cross-  
10 examination of him get done early as possible  
11 tomorrow so that we can get him on a plane back to  
12 teach his class.

13           MR. MCKINSEY: We're fine waiving any  
14 cross-examination of Mr. Raimondi.

15           MR. ABELSON: Waiving it entirely. I  
16 guess, Mr. Shean, I'd like to be sure that, you  
17 know, to the extent you can poll the audience or  
18 whatever, that we're not sending him away  
19 prematurely.

20           HEARING OFFICER SHEAN: Why don't we  
21 just -- I'll ask you for the moment, what would he  
22 testify -- what is he capable of testifying to as  
23 an expert on your team that any other team member  
24 could not?

25           MR. ABELSON: Well, I think Dr. Raimondi

1 has tremendous skills in many areas, and the  
2 various issues of methodology and impact  
3 assessment are particular areas of strength for  
4 his.

5 I understand, I think, the thrust of  
6 your point, and I think it's a fair one. And I  
7 think maybe we can resolve this by my being clear  
8 with Dr. Raimondi, if he'd be willing to try to  
9 participate by phone.

10 HEARING OFFICER SHEAN: Well, okay. I'm  
11 really more interested in -- perhaps he can answer  
12 my question. Do you think there's an area that  
13 the team would become deficient in, in your  
14 absence?

15 DR. RAIMONDI: No, unless there was  
16 going to be some very detailed questions about the  
17 methodology that I talked about today, that I --

18 HEARING OFFICER SHEAN: The EMT?

19 DR. RAIMONDI: Yeah, ETM, right.

20 HEARING OFFICER SHEAN: And that kind of  
21 thing? ETM?

22 DR. RAIMONDI: Right. And I think that  
23 we have it very well covered.

24 HEARING OFFICER SHEAN: Okay. In that  
25 case, he doesn't need to be available.

1           You get a "get out of jail free" ticket.

2           (Laughter.)

3           HEARING OFFICER SHEAN: All right. And  
4           for our good friend from the Department of Fish  
5           and Game, they're going to be serving medicinal  
6           liquids out here on the patio right about now.  
7           Okay.

8           And so if there's nothing further we'll  
9           adjourn till tomorrow morning here at 9:00. Thank  
10          you, all.

11          Is there any member of the public who's  
12          here and would like to speak? Apparently not.

13          (Whereupon, at 5:45 p.m., the hearing  
14          was adjourned, to reconvene at 9:00  
15          a.m., Wednesday, February 19, 2003, at  
16          this same location.)

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## CERTIFICATE OF REPORTER

I, JAMES RAMOS, an Electronic Reporter,  
do hereby certify that I am a disinterested person  
herein; that I recorded the foregoing California  
Energy Commission Hearing; that it was thereafter  
transcribed into typewriting.

I further certify that I am not of  
counsel or attorney for any of the parties to said  
hearing, nor in any way interested in outcome of  
said hearing.

IN WITNESS WHEREOF, I have hereunto set  
my hand this 9th day of March, 2003.

PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345